AMERICAN
GAS JOURNAL
Established 1859 Pioneer of the Gas Industry

VOL. 126, No. 24
WHOLE No. 3611

NEW YORK, SATURDAY, DECEMBER 18, 1926

Subscription $5 Per Year
$6 Canada $8 Foreign

Library of Congress
DEC 21 1926
Smithsonian Deposit

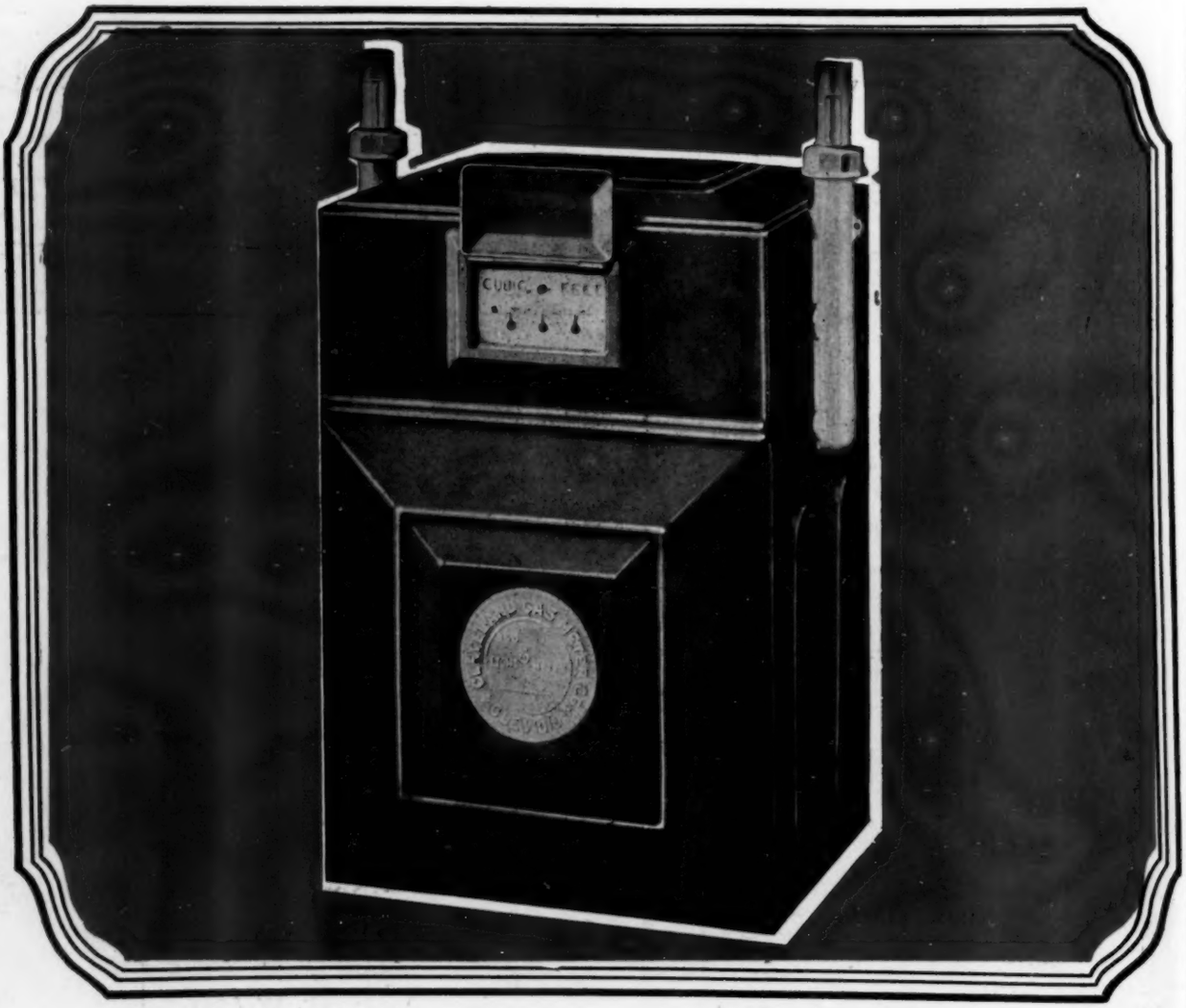
Sprague Standard Meters

for
accurate
pilot light
measurement

Sprague Standard Meters represent over twenty years of progress

Write for Bulletin No. 7

Sprague Meter Company
Bridgeport Conn.



Dependability in a gas meter means a constant measure of reliable service; this is appreciated by the Superintendent, the Meter-reader and the Consumer.

Cleveland Gas Meters have a reputation for dependable service, the result of over thirty years' experience in manufacturing.

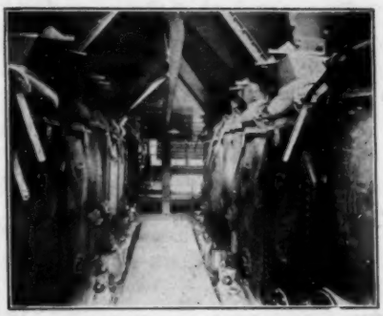
Our thoroughly organized and completely equipped factory assure you that the workmanship, materials, accuracy and general efficiency are unequaled.

"A" and "B" Types Meter Repairing

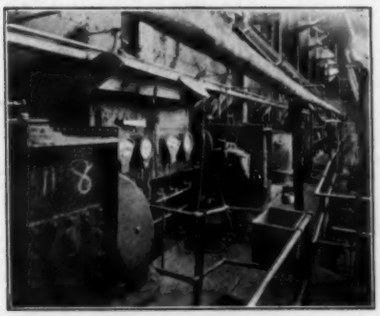
CLEVELAND GAS METER COMPANY

2180 East 65th Street **Cleveland, Ohio**

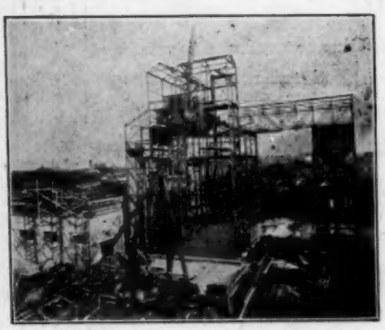
GLOVER-WEST
Vertical Retorts



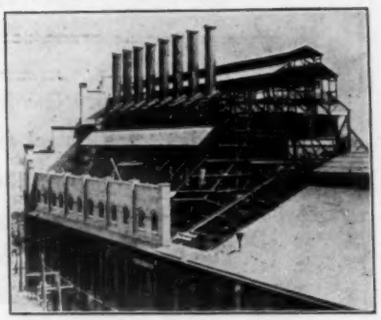
Coal Feed Hoppers; Gas Offtakes



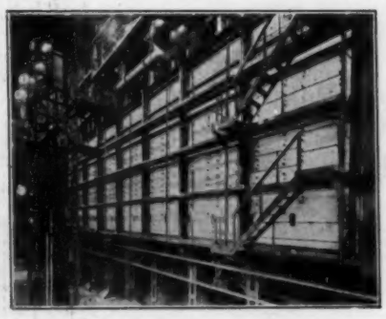
Collecting Mains Platform



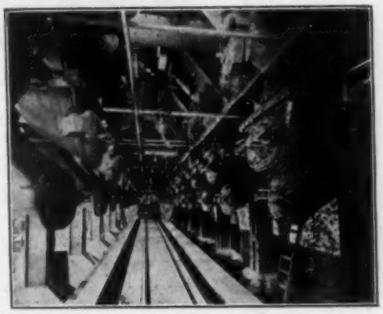
New Plant Under Construction



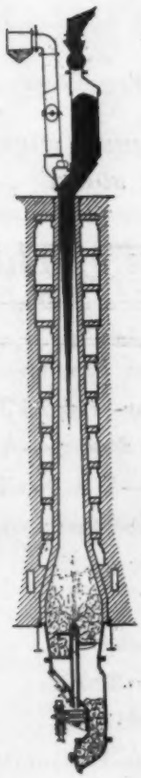
Remodeling Horiz. Retort House



Inspection Side of Benches



Coke Discharge Chambers



Recent examples of work by

WEST GAS IMPROVEMENT CO.

Builders of Coal Gas Plants

441 Lexington Ave. New York.

American Gas Journal

SIXTY-SEVENTH YEAR

Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.

S. G. KRAKE, Pres. & Treas. C. S. MYERS, Vice-Pres. A. M. GLEASON, Sec'y.

STANTON G. KRAKE, Managing Editor ISMAR GINSBERG, Editor

"MEMBER OF THE AUDIT BUREAU OF CIRCULATIONS"

Contents of This Issue

High Pressure Gas in Balmy Panama—Paul Vecker **697**
Budgetary Control and Why—Harold J. LaWall **699**
Economics of Pressure Gas Storage—A. F. Bridge **702**
Modernizing the Basement—A. A. Naulin **706**
The Industrial Gas Sales Department—D. A. Campbell **707**
Progress in Gas Technology **708**
As the Journal Views It **709**
Gas Men As Public Speakers
Co-operation Makes for Success
Industrial Gas Lesson No. 148 ..... **711**
Ideas for the Man Who Sells—William H. Matlack **713**
Gas in Fire-Place the Ladies' Delight—J. B. Dillon **715**
News of the Gas Industry **716**

Subscription $3.00 per year, including postage, in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00; foreign, $5.00—Single Copies, 10 cents.

AMERICAN GAS JOURNAL, December 18, 1926. Vol. 123. No. 29.
Published weekly by American Gas Light Journal, Inc., New York, N. Y.
Entered as second-class matter Jan. 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

AMERICAN
GAS JOURNAL

Established 1859— Pioneer of the Gas Industry

Vol. 125. No. 29. NEW YORK, DECEMBER 18, 1926. Whole No. 3611.

High Pressure Gas in Balmy Panama

How the line was laid under tropical conditions

Paul Vecker

Vice-President, Panama-Colon Gas Company

THE Panama and the Colon Gas Companies began operations in the cities of Panama and Colon respectively during July, 1917, both cities being supplied with gas service through low pressure distribution systems. During the year 1921 the two companies were consolidated into the Panama-Colon Gas Company, and the following year the company extended its radius into the Panama Canal Zone, supplying the townships of Ancon, Balboa and Cristobal with gas service. Subsequently, the company extended its gas service to Calidonia, Exposition Grounds and Bella Vista, residential suburbs of Panama City, as well as the various neighboring United States Army and Navy Military Reservations which are located in the Panama Canal Zone, namely, Fort Amador, Quarry Heights, Naval Radio Station and Fort De Lesseps. All these extensions were supplied through low pressure distribution systems.

Last year the company entered into contracts with the United States Government for supplying certain outlying army and navy military reservations on the Atlantic side of the Panama Canal with gas service. These military posts are Fort Davis, France Field, Coco Solo and Fort Randolph. The distance of these posts from the City of Colon was such that it was decided not to attempt to supply these posts through a continuation of our low pressure distribution system, but, rather, to serve them through a high pressure distribution system.

Laying the High Pressure Main

Considerable thought was given to the manner of laying the high pressure line, as a part of this line had to be run along the right of way paralleling the Panama Railroad Company's tracks. Furthermore, the advantages of laying the pipe exposed on concrete supports were taken into consideration at certain points where the line ran through re-made marsh land. Questions of high humidity, undue expansion because of tropical conditions and the action of salt air from neighboring marshes had to be considered.

Standard four-inch steel pipe supplied in forty-foot lengths with the ends bevelled for welding was used. On arrival, the pipe was thoroughly wired and brushed and given two coats of protective pipe paint —the first being a thin priming coat and the second, a heavy bituminous coat, both coats having an asphalt base. As the coatings were put on about six inches at each end of the pipe was left free, so as not to interfere with the welding.

All Pipe Laid Under Ground

It was finally decided to lay all pipe under ground —a standard U bend pipe being used at an average of every two thousand feet. After our proposed line had been staked out and the necessary rights of way had been secured, a large force of men were put to work opening up the ditch. The pipe was then strung along the ditch and the actual work of welding started. This work created considerable interest among local engineers and contractors, since it was procured from the mechanical shops of the Panama the first welded pipe that had ever been laid on the Isthmus of Panama. The oxygen and acetylene were procured from the mechanical shops of the Panama Canal, who have a generating plant. A welder was developed from a man who had had a previous slight experience in pipe welding. To obviate the necessity of numerous bell holes, the pipe was welded on top of the ground, as many as fourteen lengths being welded together and then welded on to the main line. By following this method it was possible to have men with chain tongs roll the pipe as it was being welded, thereby insuring a perfect job and making it easy for the welder. Where branches were taken off the proper cuts were made and the pipe was

welded at the proper angles, doing away with the need for any screwed or flanged fittings.

Pipe Joints Double Inspection

The pipe was tested daily with one hundred pounds of air and to have the proper check on the tests a double inspection was made, the pipe tested one day was lowered into the ditch and then tested again after lowering. Soap suds were applied to all welded joints while the pipe was under pressure. In addition to this soap sud test, the line was pumped up at night and pressures were taken and these pressures checked in the morning before the air was released. By having a flange fitted with a gate valve tacked on the end and the pressure released through this valve, all scale as well as other particles of foreign substance which might have been left in the pipe were blown out. Very little waste material was found in the pipe, as a swab was run through each length previous to its being placed in position for welding. After the pipe had been welded and tested the welds and ends of the pipe were painted and coated and all abrasions to the original coating which the pipe might have suffered in handling were touched up.

At the entrance to each army and navy reservation, low pressure regulating governors were installed as well as master station meters. Each post is served with a low pressure distribution system, cast iron pipe being used for this purpose.

Compressor Plant

Two compressors were installed at the gas plant, one a duplex steam compressor and the other an internal combustion engine of the Diesel oil type. We were influenced in using two compressors each of a different type because of our peculiar fuel conditions. We manufacture our gas under the Jones Oil Gas Process, having as residuals both tar and lampblack. These we use as our boiler fuel. Whenever we have a surplus of boiler fuel we use our steam compressor, otherwise we revert to our Diesel oil compressor. Two compression tanks were installed and fifty pounds pressure is carried in these tanks for storage. Regulators were installed which reduce the pressure on the main line to five pounds and at the entrance to each post the pressure is again reduced to six inches water column, which is the pressure carried in the individual post distribution systems.

Our contracts with the United States Government also called for supplying and installing the various gas appliances. We installed a total of sixty-one (61) sections of heavy-duty hotel ranges, one hundred and ninety-one (191) domestic ranges, one hundred and ninety-two (192) laundry stoves and two hundred and six (206) water heaters. These contracts have added several million cubic feet of gas per month to our Colon Division's load. Furthermore, each of these military posts has its respective shops and we are now working on possible industrial business.

New Contracts Signed

Within recent months we signed contracts with the United States Government which will necessitate the Panama Division of our company installing a high pressure distribution system for supplying gas service to certain outlying army posts on the Pacific side of the Panama Canal. These new contracts following so closely on the completion of the extension of our gas service to the outlying Atlantic side military reservations are positive proof that our company has fully complied with all previous contracts made with the American Government and that our service is giving entire satisfaction to the army authorities.

The construction work outlined in this article was carried out under the supervision of Clarence Cope, manager of the Colon Division, and R. A. Pearson, superintendent of distribution of the Colon Division. These two men, with the welder, were the only Americans on the job, all fitters, helpers and laborers being Panamanians and West Indians.

¤ ¤ ¤ ¤

A Perfect Christmas Dinner Cooked Automatically
SERVICE
Let the oven heat regulator of the modern gas range watch the cooking of your Christmas Day dinner.
A turn of the wheel controls the heat at any temperature desired with perfect cooking results. Leave the kitchen and enjoy the day with your family. Your dinner will be ready at the appointed time.
Visit the nearest Gas Office for detailed information concerning the automatic oven heat controlled gas range.
Telephone: TRIangle 7500
The Brooklyn Union Gas Company

A Gas Ad, Couched in the Spirit of the Season

Budgetary Control and Why*

Division of the budget---preparation of details---forms

Harold J. LaWall

Statistician, The United Gas Improvement Company

WHEN one realizes what the United States Government has accomplished by means of the Budget System, particularly during recent years, he likewise must appreciate the great importance of this scientific method of business control to industry in general. In public utility operation today the Budget System is practically indispensable. Committees of the Accounting Sections of the American Gas Association and the National Electric Light Association have given the subject much study during the past few years, and it has also received much attention by individual utility companies and holding companies.

Budgets should be simple, but at the same time sufficiently flexible to take care of various unusual conditions as they arise. The system developed in The United Gas Improvement Company is, I believe, both simple and flexible and one that can easily be modified to meet the requirements of small or large companies.

Division Budget

The budget logically divides itself into four distinct parts:

1—Sales and Revenue.
2—Construction.
3—Operating.
4—Cash.

Each of these divisions may take the form of a continuous budget or may be made for a stipulated period of time. It is usual for most companies to make the budget cover the calendar year. Work should be started early (in July or August) so that the completed budget will be ready for final approval in December. A time schedule fixed in advance for the various steps of preparation is advisable.

Sales and Revenue

The first step is the forecasting of the sales, consumers and revenue by classes of service and according to the prescribed classification of accounts. In a large company this estimate usually is prepared by the New Business Department and includes a complete survey of business conditions, new developments, extension of territory, a review of the present rate schedule and other factors vital to accurate forecasting.

Construction Budget

The next logical step is the preparation of the Construction Budget (known in our Company as the Annual Estimate), which usually is assigned to the engineers and operating force. From the sales estimate a fairly accurate estimate of yearly output and the maximum daily and hourly demands can be made which will at once indicate whether or not the present capacity of the plant and distribution systems is adequate to carry through the period of the budget.

When major improvements or developments are foreseen it may be necessary to make a complete Construction and Operating Budget for a period of years, depending upon the extent of the contemplated development.

The Procedure

Each construction project is given careful consideration and whether for capacity, safety, saving in operating, or some other reason, each project is accompanied by an argument or reason for making the expenditure. A number is given to each project included in the construction budget. This number serves as an identification and is of special value in making comparisons at a later date. Great care is exercised in preparing estimates of cost, which are based upon prices of material and labor existing at the time. It may be necessary in some cases to make estimates of cost without preparing detailed drawings and specifications in order to get the budget out on scheduled time. There may be included a project which it is felt will be necessary sometime during the budget year and on account of its probability should be provided for, but the company does not feel warranted in going to the expense of complete detailed specifications and drawings at time of preparing the budget. In these cases a note indicating how the estimates were made is shown on the project sheet, which may be used as an explanation when comparisons with actual costs are made.

Carry Over Projects

In addition to the new projects contemplated, consideration is also given to the uncompleted projects on January 1. With respect to these so-called "Carry Over Projects," a new estimate is prepared showing the amount necessary to complete each one, in lieu of the amount representing the unexpended balances, the method used by some companies. The reason for this procedure is evident as the Construction Budget should reflect, as accurately as it is possible to estimate, the cash that will be needed for new capital during the budget year. It is just as important to

---

* Paper presented at the Mid-Year Meeting, Pennsylvania Gas Association, December 6, 1926, Norristown, Pa.

estimate, or re-estimte as it is sometimes called, the construction projects which were authorized prior to the budget year and upon which work has been started. An authorization system is used for construction projects and the summary of "Carry Over" projects is a list of authorizations showing the number of each, the title and amount carried over to the new budget. The total of the "Carry Over" authorizations is added to the summary of new projects to arrive at the total construction budget for the year.

Operating Budget

The Operating Budget, as well as the Construction Budget, is dependent upon the sales and revenue estimate. This budget is made up in accordance with the prescribed classification of accounts. Some of the basic data it is necessary to gather together prior to the preparation of the Operating Budget includes:

Prices of coke, coal, oil and other materials.
Operating efficiencies.
B.t.u. requirements.
Labor costs and salaries.
Contracts.
Tax schedules.
Extraordinary maintenance (based upon plant and distribution inspection).

These data should be given careful study before proceeding with the preparation of the complete Operating Budget. Management policies with respect to the amount to be taken up in operating expense for Retirement Expense and with respect to sales campaigns, advertising, etc., also are considered.

After reviewing and studying the data which have been collected, each sub-account appearing in the classification of accounts is then estimated for the budget year. In making this estimate comparison is made with the actual costs for the last calendar year and for as many months of the current year as it is possible to secure at the time. All of the so-called yardsticks of measurement are used in testing the accuracy of the estimate, such as "Cost per M cu. ft. of sales or output," "Cost per meter," "Per cent of operating revenue," "Operating ratio," etc.

Before estimating income deductions, special consideration is given to any proposed new financing that may be necessary to provide cash for construction or other needs for the period of the budget, and also to any financing that may be contemplated. This estimate is completed after the Cash Budget is prepared, as explained later, and in conjunction with the financial officers of the company.

Cash Budget

The Cash Budget is a combination of the Sales and Revenue, Construction, and Operating Budgets. A number of adjustments are necessary to put these budgets on a cash basis. For example, the Construction Budget may contain some major project upon which it is estimated that a portion will be spent in the budget year and the balance in the succeeding year. In this case the portion to be spent in the succeeding year is deducted from the total of the Construction Budget to adjust it to a cash basis. Another example is the amount of Retirement Expense included in operating expense and the amount of Amortization of Debt Discount included in income deductions. Both of these items should be added to the net income to adjust to a cash basis. In preparing the Cash Budget consideration is given to the sinking fund payments, if any, payment of debt, receipt of loans, and all other contemplated cash transactions not covered in the other budgets.

Materials and Supplies Adjustments

An adjustment for Materials and Supplies should be considered when making the Cash Budget. Materials used for construction have been covered in the Construction Budget and likewise those for operation in the Operating Budget. It is only when an excess supply of materials and supplies is contemplated to be purchased during the budget year that will be carried over to the next year and therefore require a cash expenditure in excess of the amounts contained in the Construction and Operating Budgets, that this excess should be considered when making up the Cash Budget. Likewise, when large stocks of materials and supplies are on hand at the beginning of the budget year, which makes it unnecessary to purchase all of the materials and supplies contained in the Construction and Operating Budgets that the cash credit representing the difference between actual purchases and the amount included in the Construction and Operating Budgets should be taken into consideration.

The purpose of the Cash Budget is to inform the management of the amount of money required to carry out the program included in the other budgets, and when the management works out the financial program, taking the necessary steps to issue new securities if it is found necessary to do so, the cash budget then becomes what might be termed a financial budget.

When the management is considering the budget for final approval it is presented with a copy of the Cash Budget, accompanied by copies of the other budgets and a copy of the latest Balance Sheet. This shows the capitalization, reserves and other data necessary to enable the management intelligently to approve the budget as a whole.

Reviewing the Budget

It is usual for the management; when reviewing the budget, to use certain yardsticks to test the soundness of the figures presented. For example, the total capitalization expressed in terms of "Per dollar of operating revenue" and "Per dollar of gross income" is valuable in measuring the soundness of the company. Capitalization "Per dollar of operating revenue" is the reverse of "Turn over." The management usually has in mind a figure representing this relation which, when considered with the figure representing "Operating ratio" will reveal whether or not the company being reviewed is in sound financial condition.

Income deductions divided into the gross income show how many times the interest charges were earned and informs the management whether or not additional bonds can be issued with safety. The total Construction Budget viewed in relation to the increase in operating revenue and gross income also aids the management in passing judgment on the amount of money required for construction during the budget year. If the ratio of increase of operating revenue and gross income to the total Construction Budget is too low, according to the standards set by the management for sound and efficient operating, it may be necessary to postpone some of the construction projects contemplated in the budget. These examples are only some of the methods the management uses when giving final approval to the budget as submitted to them.

Forms

Forms are indispensable in the preparation of a budget. The forms now in use by the United Gas Improvement Company are as follows:

Name of Form	Use
Summary of Projects	Construction Budget
Summary of "Carry Overs"	" "
Outputs—Capacities	" "
Storage—Capacities	" "
Project Sheet	" "
"Carry Over" Project Sheet	" "
Condensed Financial Statement	Operating Budget
Summary of Operating	" "
Operating Revenue	" "
Operating Expenses	" "
Taxes, Non-Operating Income	" "
Income Deductions	" "
Comparison of Budget with Actual Operations	Control
Cash Requirements	Cash Budget
Comparison of Annual Estimate with Commitments and Actual Expenditures	Control

Budget Control

I have only discussed the budget as made on a yearly basis, but would like to call attention to the fact that if an efficient control is to be obtained from it, it must be divided into months. This is sometimes done after the yearly budget has been made up, but the most satisfactory way is to make it up on a monthly basis in the first place. The form entitled "Comparison of Budget with Actual Operation" is a convenient form for reporting monthly to the management, and a space is provided for explaining differences between the budget and actual.

Monthly comparison of the Construction Budget with actual commitments and expenditures also is reported to the management.

Variations between the budget and actual expenditures are explained in detail. If the variations are due to inaccurate estimating, it tends to make the estimator more careful when making the next budget estimate. The variations may be due to conditions that did not exist when the budget was prepared. In either case these comparisons are informatory and the management is in a position to take corrective steps before it is too late. A small company, skating on thin ice, may be saved from financial embarrassment by the use of a budget system operated intelligently. For a large company it is of greater importance on account of the magnitude of the amount of the money involved in its operations.

The making of yearly budgets and frequent forecasts of operations are the surest ways of keeping up the dividend payments on the common stock of any company, large or small, and too much emphasis cannot be put on the importance of making these forecasts and carefully and continually comparing the operations with them.

Conclusion

In closing I want to emphasize the fact that all estimates should be made with the idea in mind of coming as near as it is humanly possible to the actual results. There should be no thought in the estimator's mind of playing safe by making the estimates larger than he thinks the actual results will be to save himself criticism for over-running the budget. It is just as much a fault to under-run the budget estimate as it is to over-run it. The ideal result, as recently expressed by one of the officers of the company with which I am connected, is to have at the end of the year all of the figures just a little under the budget rather than a little over, so that the management will have confidence in the budget estimate which is then practically equivalent to a record.

¤ ¤ ¤ ¤

In the Fireplace

"You Can Do It Better With Gas"

Glowing firelight on a frosty autumn evening—what a wealth of homey cheer it casts over the family group, how comfortably it takes the fall chill right out of the air and throws its ruddy beams of warmth over the living room.

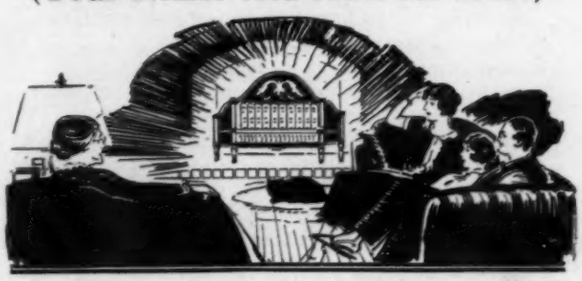
A gas fireplace heater has all the joys of the old fashioned fireplace without the work, worry and dirt; all the beauty of an open fire without its danger and waste.

See our special autumn display of

Gas Fireplace Heaters

$00 *and up—installed*

(Your Name and Address Here)



A.G.A.

The Comfort of a Gas Heater Can Be Enjoyed in All Cold Weather

Economics of Pressure Gas Storage

Details are given of principles involved and results of actual experience

A. F. Bridge

Southern Counties Gas Company

IT recently became necessary to formulate a plan for additional gas storage on the natural gas system of Southern Counties Gas Company.

This system comprises an inter-connected network of transmission lines supplying natural gas to some 66,000 consumers in Southern California communities scattered over an area of 990 square miles. The sources of supply are thirteen gas fields located in Los Angeles, Orange and Ventura counties. Field compressor stations deliver gas into the transmission lines at a pressure of 275 lbs., and the isolated distribution systems are fed through district regulators at pressures ranging from 12 inches to 7 lbs. Increase in domestic peak demands, accompanied by gradual decline in natural gas supply, necessitated supplementing hourly capacity of primary sources by delivery from storage.

It is estimated that peak day requirements in 1930 will be approximately 42,000 M. cu. ft., and as net line pack of 2,800 M. cu. ft. is available, and now utilized, additional storage of about 6,000 M. cu. ft. will be required by 1930, in order to equate pipe line deliveries from field stations.

A study was made of various types and arrangements of storage facilities to determine their relative merits, particularly from an economic standpoint. It is believed that the quantitative conclusions derived are applicable to any similar gas system and, therefore, should be of general interest.

Important Elements Involved

Among the more important elements involved in a study of this problem are:

Annual cost per unit of capacity.
- Investment costs.
- Operating expenses.

Concentrated vs. Distributed Storage, in relation to
- Effect on delivery capacity of transmission facilities.
- Reliability of service.
- Adaptability to existing and future load and supply conditions.

Comparison of high pressure and low pressure storage, involving, in addition to the above matters,
- Send-out capacity.
- Automatic control.
- Sightliness and noise (nuisance characteristics).
- Conservation of gas (independent of cost aspect).
- Increment installation, resulting flexibility of program, and reduced average fixed charges.

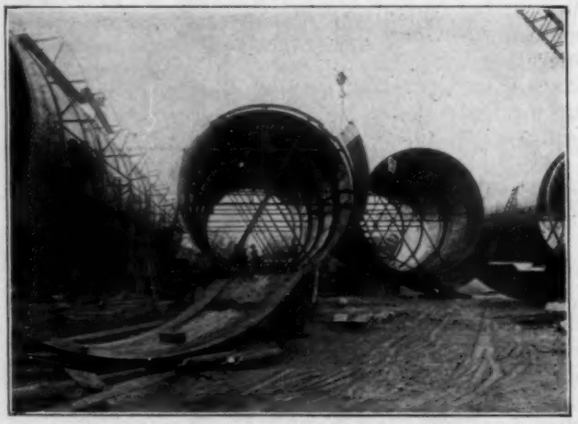
Since storage is provided for the purpose of improving or maintaining service and hence is a non-revenue producing betterment, except to a minor extent, the total annual cost is the controlling factor, and will be considered first.

Obviously there are numerous plans which might be adopted for additional storage, which may be classified broadly as follows:

Arrangement:
- C. Concentrated—A large centrally located holder station serving the entire system, or a major district.
- D. Distributed—Relatively smaller holder stations located at transmission line termini in important centers of distribution.

Type:
- L. Low Pressure—Telescopic or mechanical piston type, operating at pressures of 0.2—0.3 lbs. and requiring a compressor plant to discharge the stored gas.
- H. High Pressure—Compression tank or water displacement type, automatic, non-attended, input and output controlled by regulators, storing gas at pressures ranging from 30 lbs. to 50 lbs.

To test the relative costs of the various alternatives, comparison was first made of two plans, each involving a total of 6,000,000 cubic feet of storage capacity.



Santa Ana Installation Under Construction

Plan C-L

One of these which is typical of both C. and L. in the above classification, covers the installation of a 6,000,000 cubic foot waterless, low pressure, holder station near the load center of Orange County District, one of the five major districts of this system. This holder would indirectly provide storage for the entire system by supplying all of the local (Orange County District) load, up to the limit of its capacity, during peak periods, thus releasing pipe line delivery to other districts. Gas would be discharged from this holder into the district transmission mains by means of reciprocating compressors direct driven by four-cycle gas engines. Under our conditions, the

latter is the most economical and reliable prime mover available.

This holder station and the necessary pipe lines radiating from it to the several distribution centers, which comprise the district, were designed, and annual costs computed, for compressor station discharge pressures of 100 lb., 50 lb., and 25 lb., which plans are designated C-L-1, C-L-2, and C-L-3 respectively. Since the district transmission system is now fed at three points from primary transmission lines at pressures of 150 lb.-175 lb., some reinforcement is necessary for all three of the conditions assumed.

From analysis of typical load charts, we find that with a district peak day send-out of 7,700 M. cu. ft. the holder can be completely discharged in a 14-hour period, with a peak hour of 640 M. cu. ft. Utilizing the holder to carry the entire district load improves the hourly-daily load factor, it being about 50 per cent as compared with 20 per cent for the usual arrangement where the holder station supplies only the load in excess of average hourly send-out.

Plan D.-H.

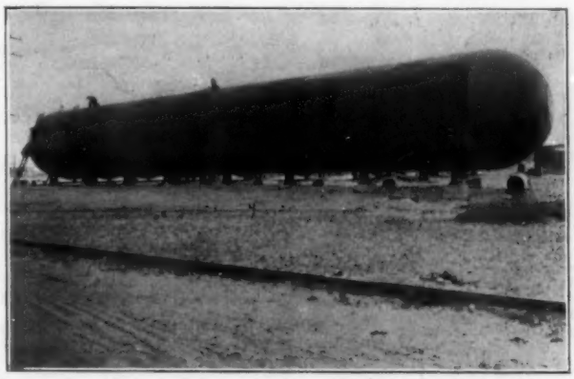
The alternative plan comprises a total of 6,000,000 cubic feet of high pressure storage in units of 100,000 cu. ft. or more, and located in various distribution centers as may be prescribed by load conditions. As the number and location of the high pressure holder installations will not appreciably affect the total cost, it is necessary to determine same only approximately for purposes of comparison. The costs of land and foundations are not included in any of the plans in order to simplify the estimates, and because variations in these costs would have a negligible effect on the total cost.

For purposes of this study it is assumed that these holders will be located at San Pedro, Santa Ana, Pomona, Ontario, Covina and Monrovia, six widely separated cities where storage capacity ranging from 300 to 2,000 M. cu. ft. can be utilized. High pressure storage requires transmission line delivery for filling, and this condition is met adequately by existing facilities except in Santa Ana and San Pedro, where certain transmission main extensions are necessary.

Quotations have been obtained on high pressure storage covering a variety of types, sizes, and maximum working pressures. The selection of type, unit size, and working pressure are governed by local conditions for each holder site. There are two general types—the compression tank, either spherical or cylindrical with hemispherical ends, and the cylindrical, hydraulic-displacement type. The first type is cheaper for maximum working pressures above approximately 30 lbs. and the second type at lower pressures. Practical sizes of units range from 100 M. cu. ft. to 500 M. cu. ft., dependent on type and working pressure. Prices, which are rather independent of unit size, range from $102,000 to $134,000 per million of net capacity, based upon a minimum send-out pressure of 5 lbs. All quotations are based on a maximum working tensile stress of 13,750 lbs. per sq. inch, corresponding to a safety factor of 4.

An average price of $108,000 per million cu. ft. of net capacity is used for purposes of comparison, exclusive of foundations, piping and regulators.

Table I shows the direct savings obtainable with Plan D. H. as compared with the other three involving the use of concentrated low pressure storage. It should be noted that the annual fixed costs do not vary widely, most of the economy in Plan D. H. resulting from elimination of compressor plant operation. While the investment in secondary transmission mains depends entirely on conditions peculiar to the district selected for storage installation, it should be observed that even if this item and its accompanying fixed charges be entirely eliminated, the least annual savings due to Plan D. H. is $14,000.



Holder at Newport—100,000 cu. ft. Net Capacity

Effecting Cost Reductions

A reduction in fixed charges and labor might be accomplished by substituting electric motors for gas engines in the compressor station, but, at prevailing rates, increased cost of energy would more than offset this saving. Furthermore, the sacrifice in reliability of operation accompanying such a change would condemn it from a service standpoint, unless power is available from two independent electric systems.

There are, however, other important advantages associated with Plan D. H. which are difficult to determine quantitatively but which have a definite effect on both the cost and quality of gas service. Some of these result from the locating of storage at various distribution centers, others are due to high pressure storage.

Among those due to distributed storage are the following:

If storage is provided at termini of transmission lines, properly proportioned to the various terminal loads, the daily capacity of most of the transmission system is approximately doubled as compared with its capacity when centralized system storage is employed, since the peak hour is about twice the average hourly send-out. In other words, centralized storage serves only to equate the load on production sources and certain primary lines connecting these sources with the central holder, whereas distributed storage will equalize delivery both from sources and from the entire transmission network.

SUMMARIZED COMPARISON OF ANNUAL COSTS OF 6,000 M. CUBIC FEET OF GAS STORAGE

Table No. 1

Item No.	Plan C-L-1 Description	Cost	Plan C-L-2 Description	Cost	Plan C-L-3 Description	Cost	Plan D-H Description	Cost
(1)	6,000 M. cu. ft. waterless low pressure holder erected, exclusive of foundation	$382,000	Same as Item 1, Plan C-L-1	$382,000	Same as Item 1, Plan C-L-1	$382,000	6,000,000 cu. ft. capacity in pressure holders in units of 250,000 or greater	$648,000
(2)	Gas engine driven, 2 stage compressors totalling 1750 horsepower, discharge pressure 100 lb. installed, including auxiliary equipment	200,000	Same as Item 2, Plan C-L-1 except total 1600 horsepower single stage 50 lb. discharge pressure	190,000	Same as Item 2, Plan C-L-1 except 930 horsepower, single stage, 25 lb. discharge pressure	132,000	Piping and regulators for 6 holder stations	15,000
(3)	Secondary transmission reinforcement required to fill and discharge holder 41,000' of 8" line	68,600	Same as Item 3, C-L-1 except 59,500' of 6", 8" and 10" lines	110,100	Same as Item 3, C-L-1, except 73,700' of 6", 8", 10", 12" and 15" lines.	161,000	Secondary transmission reinforcements or extensions	20,790
(4)	Total holder station and additions to transmission system	650,600		682,100		675,000	Total holder stations and additions to transmission system	683,790
	ANNUAL COSTS							
	Interest at 7%	$ 45,542		$ 47,747		$ 47,250		$ 47,865
	Depreciation (6% Sinking Fund Basis) Holders (40 year life)	2,648		2,648		2,648		4,417
	Compressor Station (15 year life)	8,592		8,162		5,671		
	Pipe Lines (20 year life)	1,865		2,993		4,376		565
	Total Fixed Charges	$ 58,647		$ 61,550		$ 59,945		$ 52,847
	Operating Expenses							
	Maintenance Pipe Lines	$ 200		$ 300		$ 400		$ 70
	Maintenance Holders	1,600		1,600		1,600		3,200
	Compressor Plant Operations Labor (8 operators)	14,700		14,700	Labor (5 operators)	9,900		
	Fuel (Fuel Economy 10 cu. ft. per H. P. hour value of 25c per M. cu. ft.	13,414		12,279		7,159		
	Lubricants	2,137		2,004		1,282		
	Maintenance	2,500		2,500		1,500		
	Insurance	3,000		3,000		2,400		
	Total Operating Expenses.	$ 37,551		$ 36,383		$ 24,241		$ 3,270
	Total Annual Costs	96,198		97,933		84,186		56,117

There is of course a practical limit to the subdivision of storage facilities, which is controlled by the increase in cost per unit of capacity accompanying the reduction in size of holders, in maintenance, and related factors.

General Principles Governing Subdivided Storage

These general principles are clearly set forth in a report of a committee on Increasing Distribution Capacities (A. G. A., 1921) which is briefly quoted as follows:

"If ideal distribution of gas could be attained there would be a miniature gas holder on every customer's premises, which would be of such size as to supply his need for gas during the demand periods, and in which the supply would be replenished when his demand ceased. The load factor on mains and services would be one hundred per cent since an equal rate of flow into the numerous holders would be going on at all times. The size of mains and services would be very small since they would not need to be proportioned to meet any peak demands.

"These ideal conditions cannot be attained on a practical scale using so many small units, but similar conditions can be obtained by the adoption of larger units, namely, district holders.

"The exact sizes of district holders is a question to be determined largely by the conditions prevailing in a given system. It is evident that a great number of small holders more nearly approach ideal conditions than a small number of large holders, but the operating costs might render the large number impractical. A half million cubic foot holder seems like a rather workable size for cities with an output of upwards of ten million feet per day."

In a system such as that under consideration, consisting of a number of isolated communities supplied from long transmission lines, it is obvious that reliability of service is promoted by distribution rather than concentration of storage. This effect is not confined to actual interruption of service due to breakage of pipe lines, compressor station trouble, etc., as experience has shown that sudden increases in load frequently result in shortages in districts or communities remote from production sources or where supply lines are heavily loaded. Storage within a district provides a secondary source of supply entirely controllable by the district and instantly available

Long Operative Life Planned

In planning for storage, which is generally assumed to have an operative life of 40 years or more, it is important to foresee the probable changes in supply and load conditions in order to provide holders of such type and so located that their usefulness will be unimpaired by changing conditions. Sources and

quantity of supply have varied frequently in the past on this system and will continue to do so.

We next proceed to compare annual costs for typical examples of D-L and D-H, that is, a low pressure and a high pressure holder station each serving a single distribution system. This condition requires an hourly delivery capacity from storage equivalent to about 22 per cent of holder capacity.

Due to the low load factor, no spare compressor has been included, even where the station contains but a single unit. A distribution pressure of 5 lbs. has been assumed.

Table No. 2 shows comparative costs for installations of 2,000 and 1,000 M. cu. ft. It should be noted that in the latter case the first cost of the holder alone is less for high-pressure storage.

The figures given in Table No. 2 are independent of local conditions and applicable to any holder station of like size, where gas is distributed from storage at about 5 lb. pressure. In the case of a system where the distribution pressure is low enough to permit delivery from a low pressure holder without boosting, economies are obtainable with high pressure storage when the station capacity is 1,000 M. cu. ft. or less.

available at pressures above the normal distribution pressure, which makes possible feeding secondary transmission lines direct from storage. This practice is now followed at Azusa, and is planned for holders under construction at Sierra Madre and Orange. Thus, in the case of holders designed for a working pressure range of five to fifty pounds, the percentage of net capacity available above various pressures is as follows:

	Compression Tank Type	Water Displacement Type
Above 5 lbs.	100%	100%
" 10 lbs.	89%	92%
" 15 lbs.	78%	86%
" 20 lbs.	67%	78%
" 25 lbs.	56%	68%

SUMMARY OF ANNUAL COSTS FOR LOW PRESSURE AND HIGH PRESSURE HOLDER STATIONS LOCATED AT DISTRIBUTION CENTERS

Table No. 2

INVESTMENT

2,000 M. cu. ft. Holder — Low Pressure Description	Cost	2,000 M. cu. ft. Holder — High Pressure Description	Cost	1,000 M. cu. ft. Holder — Low Pressure Description	Cost	1,000 M. cu. ft. Holder — High Pressure Description	Cost
2,000 M. cu. ft. waterless low pressure holder erected, exclusive of foundation	$176,000	2,000 M. cu. ft. of high pressure storage exclusive of foundation	$216,000	1,000 M. cu. ft. waterless low pressure holder erected exclusive of foundation	$123,000	1,000 M. cu. ft. of high pressure storage erected exclusive of foundation.	$108,000
Compressor station 2—160 H. P. gas engine driven 15 lbs. discharge pressure capacity 400 M. per hour	44,000	Piping and regulators for holder station	2,500	Compressor station 1—160 H. P. gas engine driven 200 M. per hour	22,000	Piping and regulators for holder station	2,500
Total Investment	$220,000		$218,500		$145,000		$110,500
ANNUAL COSTS							
Interest at 7%	$ 15,400		$ 15,295		$ 10,150		$ 7,735
Depreciation Holders 6% S. F. basis (40 year life).	1,137		1,420		795		718
Depreciation Compressor Plant (15 year life)	1,890				945		
Total Fixed Charges	$ 18,427		$ 16,715		$ 11,890		$ 8,453
Operating Expenses							
Maintenance of Holder	$ 870		930		440		470
Labor	5,760				5,760		
Fuel—10 cu. ft. per H. P. hour at 25c per M	1,226				613		
Lubricants	281				140		
Maintenance Compressor Plant	400				200		
Insurance	600				400		
Total Operating Expenses	$ 9,137		$ 930		$ 7,553		$ 470
Total Annual Cost	27,564		17,645		19,443		$ 8,923

Advantages of High Pressure Storage

Salient advantages of high pressure storage other than direct annual costs include the following:

The peak hour send-out capacity is practically unlimited, whereas, in the case of a low pressure holder, it is restricted to the capacity of compressors both as to pressure and volume. Thus a high pressure holder may be entirely discharged in one hour, if distribution main capacity permits. This feature greatly increases the flexibility of storage operation, especially in meeting unexpected or emergency peaks.

Part of the capacity of high pressure storage is

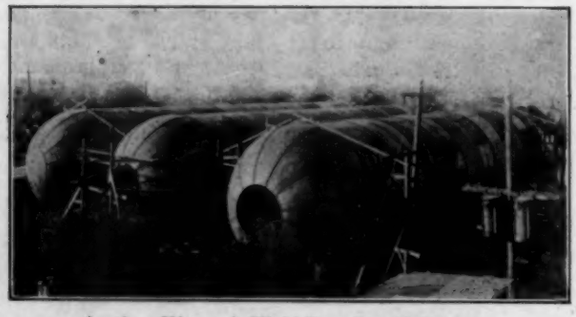
As a result of the above, if conditions require, either temporarily or permanently, the use of a higher delivery pressure than that designed for, this is accommodated by a high pressure holder without any modification, and results only in a slight loss of capacity. If, as will usually be the case, the abnormal pressure is required to meet the morning peak demand, there will be no sacrifice of capacity.

When installed in cities having low pressure distribution systems, the net capacity is increased by 10 per cent or more and costs per M. cu. ft. of capacity given above are reduced correspondingly. This condition exists at Orange, Santa Ana and Ontario.

High Pressure Compared With Low Pressure Storage

High pressure storage in contrast to low pressure:

Has no moving parts, hence will not wear out nor get out of order.



Another View of High Pressure Holders

Is automatic in operation, and unattended, hence does not fail to function due to human negligence.

Can be constructed in any desired combination of sizes, arrangement of units, and ratio of height to diameter, without materially affecting its cost, hence can be adapted to available sites and rendered unobjectionable to owners of adjoining property.

Operation is not accompanied by noise, odor or other nuisance.

Does not require natural gas for fuel operation. In the face of a declining gas supply and increasing distances from source to market, which already has necessitated triple compression of gas, in some cases, this feature is very important.

Lastly and possibly most important, it can be provided in increments when and where load and supply conditions may require, without adversely affecting the final cost; hence, the present cost of service need not be overloaded by fixed charges of unused capacity.

As a result of this cost analysis, a program of pressure storage construction was inaugurated in 1925, and six stations totalling 2,100 M. are now operating successfully. The accompanying photographs show some of these holders, both under construction and in service. Additional installations are scheduled for 1927.

Modernizing the Basement *

Gas incineration an important addition to the domestic load

A. A. Naulin

President, Home Incinerator Company

THE problems of garbage and refuse disposal are growing very difficult as population in large cities become denser and life more complex; also that destruction at the source by home owners is absolutely the best relief for this growing problem.

In a home equipped with a properly constructed gas-fired incinerator, all major factors of household disposal nuisances such as garbage, rubbish, trash, tin cans, cartons, paper boxes, etc., can be successfully, safely and economically disposed of, leaving only one municipal disposal problem, that of the ash where coal or wood is used as a fuel and with the big increase in the use of automatic heat, this problem in many homes does not exist today.

Connection With Fire Losses

Statistics show that in 1924 the fire loss in the United States amounted to $549,062,124. Wilfred Kurth, president of the National Board of Fire Underwriters, said that the fire loss of 1925 increased $21,163,797, or a new total of $570,225,921. This large figure is an indictment on our sense of duty and carelessness towards this terrible destroyer of the American home because:

One home in the U. S. was burned every three minutes.

Fifteen thousand people killed each year—17,000 permanently injured.

Forty-one people burned to death every twenty-four hours.

Forty-seven injured by fire every twenty-four hours.

Enough buildings are burned yearly to make a solid line from New York to Denver.

Leading authorities, such as Joseph J. Connery, Fire Commissioner of the City of Chicago, Ill., said that 60 per cent of this fire loss is attributable directly to piles of rubbish, paper, trash, etc., and recommends that all forms of trash be burned regularly in some safe appliance.

A properly constructed gas-fired incinerator is absolutely the safest way to dispose of household refuse and rubbish, and if the gas industry will realize that here lies an opportunity to serve the home owners in each community in a larger capacity than even fire insurance companies can serve, by offering home owners a safe, sure means of fire prevention, approximately 60 per cent of the fires would be eliminated.

There is also a great opportunity for the gas industry to render a humanitarian service to their customers in presenting to them increased sanitation, comfort and convenience that may be theirs when they

(Continued on page 710)

* Delivered at the Thursday meeting of the Commercial Section, A. G. A. Convention, Atlantic City, October 14, 1926.

The Industrial Gas Sales Department*

Its organization and operation

D. A. Campbell

THIS paper attempts to cover in concise manner a few important points to be considered in the making of a successful Industrial Gas Sales Department in the ordinary utility of from 20,000 to 200,000 customers, having the ordinary ratio of industrial users to domestic customers, based on experience as well as theory.

It might be well at the start to define industrial and commercial gas as used in this paper. In its broadest sense, industrial gas is used to cover all gas sold for other than strictly home use or house heating, regardless of quantities.

The following general sub-divisions quite naturally appear. The order of their importance will vary according to the character of the city.

1. Hotel and restaurant.
2. Large volume water heating.
3. Food baking.
4. Steam boilers.
5. Metal melting.
6. Heat treating.
7. Industrial baking and drying.
8. Brick and ceramic burning.
9. Miscellaneous and special.

Objectives of Industrial Gas Sales Department

Another thing which should be defined at the start is the scope and functions of an Industrial Gas Sales Department. As understood by the writer, the objective of an Industrial Sales Department are only two:

1. To sell industrial gas in large quantities at a reasonable expense.
2. To keep it sold.

In order to accomplish these two objectives successfully, the Industrial Sales Department must perform the following functions:

1. Survey all present and potential users of heat for additional or new gas loads regardless of rates for present fuels.
2. Secure and present to the management data on which new or improved rates may be introduced.
3. Develop and secure new or additional loads by selling appliances, changing industrial processes or assisting new industries.
4. Favorably present the gas company at all times to all industrial plants.
5. Act as the adviser of the industrial user in assisting him to present his needs to the gas company.
6. Keep such a record of new or additional loads secured and available that the management can always justify any expense budgeted or incurred by the Industrial Sales Department.

---

* Presented at the Tuesday meeting of the Industrial Gas Section, A. G. A. Convention, Atlantic City, October 12, 1926.

Department Heads

An Industrial Sales Department should be organized from the top down. The man selected to head the department should be primarily a sales executive capable of using authority judiciously and accepting responsibility. If such a man were also well acquainted with industrial processes and appliances he would undoubtedly be well equipped for his work, but if he is strictly an engineer, lacking in the commercial sense which a sales executive must have, his department will probably degenerate into a technical research group rather than a sales department. It is a sad but true statement that the best salesmen or sales managers are rarely the best engineers.

With such a man selected, regardless of whether he reports directly to the management, or in large organizations, to the sales manager, he should still have the qualifications of a sales manager and be allowed the utmost freedom possible in the selection of his men and plans of action consistent with results and the costs of securing them. The new department head must be careful to correctly establish his relations with other departments and with the management so that his department may function smoothly. It is of utmost importance that the department be considered as a sales department only, and that it does not concern itself with operating engineering problems. It is conversely just as important that other departments do not concern themselves with the functions which the Industrial Sales Department is designed to perform.

A very brief personal survey of the city will enable the department head to select a few men that fit the apparent work to be done, preferably engineers. By use of these men, a few well designed forms, and some careful supervision, a sufficiently accurate survey can be made so that the probable size and general characteristics of the department can be determined. As the survey progresses, the department head begins to have a measure of the work to be done, the class of men he needs, the rates on which business can be secured, the types and makes of equipment to be sold, and the loads to be sold first. He is also able to establish compensation schedules on which he can get the men he needs to produce results desired.

Selection of Men

As the work to be done is primarily sales work, he will select, above all, men who can and will sell. If he can find salesmen who are also engineers, he is fortunate. If he should select only engineers he cannot expect highly successful salesmen. Another attribute which is desirable in industrial gas salesmen besides sales and engineering training is suffi-

(Continued on page 710)

PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

SULPHUR CONTENT OF GAS OILS

IT has generally been held that gas oil, intended for the carburation of water gas, should contain only a very small amount of sulphur, generally less than ½ per cent. An interesting article has appeared in the Dutch gas magazine, "Het Gas," which discusses certain experience surrounding the use of gas oils whose sulphur content was as high as 3 per cent.

It is established that the sulphur in the gas oil passes into the carburetted water gas, either in the form of sulphuretted hydrogen or else as carbon disulphide. The important point is the manner in which sulphur is distributed between these two compounds, for the sulphuretted hydrogen can be almost completely eliminated by dry purification, while this is not true in the case of carbon disulphide. Thus, the question as to whether or not the sulphur in the gas oil will have a bad effect on the carburetted water gas depends on the answer to two questions; one, what is the sulphur content in the gas after elimination of sulphuretted hydrogen; and two, what quantity of sulphuretted hydrogen can be contained in the gas without overloading the purifiers.

The tests were made with a common type of water gas apparatus and analyses were carried out to determine, first, sulphur in the coke; second, sulphur in the state of sulphuretted hydrogen in the blue gas; and third, the sulphur in the form of carbon disulphide in the blue gas. The result of the first series of tests was 1.30 per cent average; that of the second, 2.9 grams of sulphuretted hydrogen per cubic meter; and that the the third, 14 grams of carbon disulphide per 100 cubic meters.

Tests were then made in carburetting the blue gas with 5,000 kilograms of oil per test. The quantity of oil used were 21 kilos per 100 cubic meters, and the increase in volume due to carburation was about 12 per cent.

The results of the various tests are given in the following tabulation:

No. of Oil.	Sulphur Content of Oil Percentage.	Sulphur Content of Gas Not Removed By Purification. Grams Per 100 Cubic Meters.	Quantity of Non-Eliminated Sulphur Coming from Coke. Grams Per 100 Cubic Meters.	Quantity of Non-Eliminated Sulphur Coming from Coke. Grams Per 100 Cubic Meters.
I	0.27	16.6	12.3	4.3
II	0.45	16.9	12.3	4.6
III	0.91	17.9	12.3	5.6
IV	1.8	21.1	12.3	8.8
V	2.4	22.4	12.3	10.1
VI	2.82	27.2	12.3	14.9

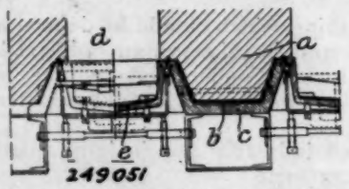
From this table it is seen that six oils were used whose sulphur content varied from 0.27 per cent to 2.82 per cent. The sulphur content that could not be eliminated from purification varied from 16.6 to 27.2 grams per 100 cubic meters. This showed that even an oil that contains as high as 2.82 per cent sulphur could be used with safety for carburation.

Other studies were also made to determine the exact manner in which the sulphur content of the carburetted water gas was derived, either from the coke or the gas oil, and the conclusion was that as long as oil containing as high as 2.82 per cent sulphur, gave a gas which contained 7.1 grams of sulphur per cubic meter, that could be eliminated by dry purification, and 27.2 grams of sulphur per 100 cubic meters in the state of carbon disulphide, hence, there is no danger or inconvenience attached to the use of such an oil in the carburation of water gas. For this reason, the sulphur limits in a gas oil can be materially increased.

¤ ¤ ¤ ¤

PREVENTING LEAKAGE IN COKE OVEN WALLS

TO prevent leakage of gas and radiation of heat from the front ends of coke ovens the masonry of the ends, a, is covered with a layer, b, of insulating material such as kieselguhr or asbestos,

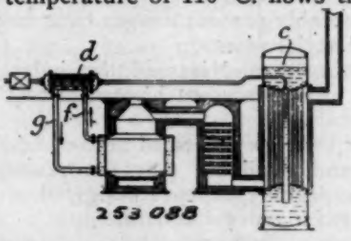


and this is then enclosed by iron frame plates, c, which may be integral members for each oven front or may comprise a number of plates fitted together. The oven chambers, d, are provided with self-packing doors, e. British Patent No. 249051.

¤ ¤ ¤ ¤

WATER GAS GENERATOR

THE water jacket of a gas-producer is connected with an economizer through which feed-water is pumped to a waste heat boiler C. The jacket-water at a temperature of 110° C. flows through an



uptake pipe f to the economizer d and returns through a down-comer g. British Patent No. 253,088.

As The Journal Views It

GAS MEN AS PUBLIC SPEAKERS

It has been established that the old policy of letting the public know nothing about the gas industry was wrong. It has been proven today, beyond any doubt, that since the gas industry and the public utility industry in general have themselves been advertising the service that they sell to the public and have taken the trouble to furnish the newspapers and other publicity media with correct information regarding themselves and their organizations, —that since this practice has been in vogue, relations between the public and the public service industry have been greatly improved. The value of proper dignified publicity has been undebatedly established.

But, this work has been accomplished mainly through the written word. It is true, that certain gas men have periodically appeared in the past before public gatherings and told them something about the gas industry and the service that it renders to civilized society. It is true that prominent members of the gas fraternity, who have a penchant for public speaking, have attended banquets and public gatherings of both a business and social character and there told their listeners what gas really means to the community. But, as a whole, gas men have not been very prone to appear in public and talk about gas. In fact, it must be said that the leaders of the gas industry have in the past thought it inadvisable for gas men to participate in public affairs and to come out in the open, so to speak, at public meetings, for fear of being misunderstood and subjected to adverse criticism.

But today, the situation has changed and the value of the personal appeal, of the spoken rather than of the written word, has become apparent to the gas industry. Gas men are now encouraged to appear before meetings of societies, both business and social, and to deliver their talks pertaining to gas. This work is of tremendous importance to the gas industry and it should be continued and extended throughout the entire country. It supplements publicity work which is now being done through the medium of the written word with talks by men who know their subject and know how to present it and gain the interest of their listeners. It cannot fail to be a potent influence promoting the friendly relations which gas men now enjoy in most communities and also in clearing up misunderstandings and correcting misinformation about the gas industry and the manner in which it operates. The gas industry has in this factor, an opportunity to popularize itself with the average citizen and to give first-hand information on all phases of its business. It is work that is highly to be commended.

☼ ☼ ☼ ☼

CO-OPERATION MAKES FOR SUCCESS

It has often been said that it is absolutely necessary for co-operation to be practiced by the members of a gas organization if that organization is to be successful and if the gas company is to progress in the proper manner. In other words, the problems that confront the industry are of such magnitude and complexity that the only way in which they can be satisfactorily handled is by everyone taking part in the effort to solve them.

Our Union of States was founded on the principle that in unity there is strength, and this principle can well be adopted as one of the fundamental bases on which a gas organization should be built.

From time to time we find examples which substantiate this contention. These examples are of a concrete nature, which is of added importance, for it shows the gas man in a very clearly defined manner that the abstract advantages of co-operation can be proven by actual practical demonstration. Thus, we have reference to a campaign which was recently carried out by a Southern gas company, in which gas ranges were sold in localities where people are poor and where there is very lively competition with coal ranges, because of the very low price of coal due to their proximity to coal mining centers. The gas men in this case selected a quota which they did not really expect to reach, and which in fact was beyond what any other company of a similar size had heretofore accomplished in the South. They were, however, not discouraged and they set out to work and make good. They determined that at the end they would feel satisfied that they had made every effort to bring about the desired results. Suffice it to say,

that not only was the goal reached, but it was considerably exceeded.

An examination of the manner in which this campaign was conducted, teaches a very pertinent lesson, for the entire campaign was based on 100 per cent co-operation of all employees, whether they were actual salesmen or not. Everybody, from the chief executive down to the meter reader, helped in this campaign and the results showed in an unmistakable manner that if gas men get together to put something over, they are bound to succeed, if everyone does his bit and is willing to work in co-operation with his fellows to promote the general welfare of his company and of the industry at large.

Thus the secret of success in the gas undertaking can well be said to be co-operation, for wherever co-operative effort is applied, there will always be found a direct substantiation of this principle. The spectacle of an organization, working together as a unit, each member of which is performing his allotted tasks and executing every effort to further the interests of his company, is gratifying, enlightening and potent in commanding respect and admiration. It gives the general public the feeling that the gas organization is a unit and helps in this way to enable the gas executives to attain success in their sales, financial and other undertakings.

¤ ¤ ¤ ¤

MODERNIZING THE BASEMENT

(Continued from page 706)

accept the gas companies' remedy for the filthy evils of the garbage can.

The Health Factor

Health is another benefit offered by gas-fired incineration because people do not "get sick," but in most cases are given sickness by flies, mosquitoes and other pests carrying disease germs which have been bred in garbage cans. No well-laid-out lawn or carefully groomed garden or premises of any kind was improved in its looks by one or more cans where garbage and rubbish are stored awaiting a municipal collector.

These are a few of the reasons why there is no question about the tremendous growth that will come in the gas incineration business, but it will not come until such time as the gas industry sees fit to tell its customers what gas incineration can do for them in their home life. The people do not know today why the destruction of refuse and garbage at the source is by far the superior method and they will not know until they are told by the gas industry.

Figures show that there are approximately 686,000 users of automatic heat in the United States today, and if expectations are carried out this number will be increased by at least 200,000 users this year, and no doubt in larger numbers in the next few years. This indicates conclusively to those who have studied gas incineration as one of the real factors of home comfort, that there are at least 500,000 home owners who are in the market immediately for domestic gas incineration and can be served with this added comfort in their home if the gas industry will place itself in a position to tell them the real reasons why gas incineration will make their life more comfortable, their property more safe, their family more healthy, and their premises more sanitary.

Based on figures taken from a Middle West gas property which has over 400 satisfied domestic gas incinerator customers on its line— the 500,000 home owners previously referred to, sold on the idea of domestic gas incineration—would produce an off peak, all-year-round additional gas load of five hundred million (500,000,000) cubic feet per month.

¤ ¤ ¤ ¤

THE INDUSTRIAL GAS SALES DEPARTMENT

(Continued from page 707)

cient imagination to enable him to visualize the processes where his prospect can use heat and, therefore, gas. The department should now be made up of some salesmen, some engineers, and perhaps some combinations. Anyhow, a group of men which, taken as a whole, have sales ability, engineering ability, imagination, enthusiasm and a very great willingness to work.

As the survey work goes on, the department head has probably been able to decide just what each man can sell best. Obviously a chemical engineer is not necessary to sell restaurant equipment but a good knowledge of chemistry would probably be of great assistance in selling a new process using gas to a terra cotta company.

Results of Survey

Upon the conclusion of the survey, the department head should have a very good knowledge of the sales work to be done, and a sales organization complete although untried and requiring sales training. Based on the results of the survey, the management should provide the department with the lowest rate possible, designed to get the business available, as well as any suggestion or assistance necessary.

Up to this time, over a period of probably several months, the Industrial Sales Department may not have made a sale nor added a cubic foot of load. The cost of organization and survey work has been perhaps several thousands of dollars. The real test is now to come. The department head must now prove that his department is a sales department in fact as well as name. If the department cannot now produce and maintain new revenue for his company all

(Continued on page 712)

INDUSTRIAL GAS LESSONS

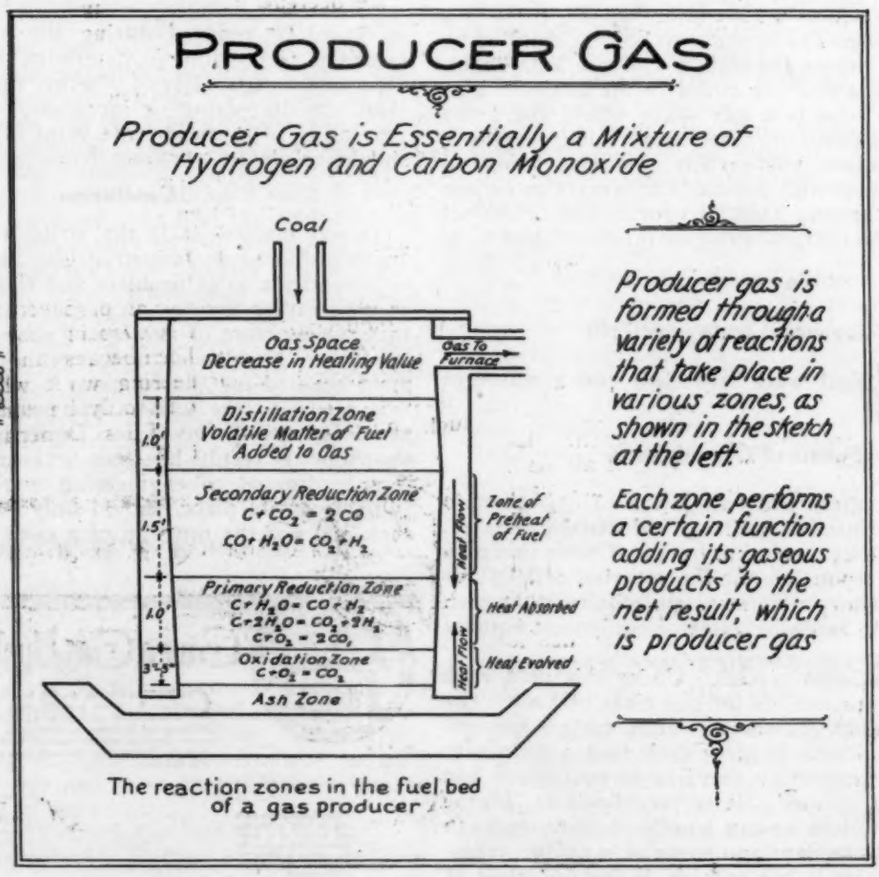
IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 148

Manufactured Gas

Producer Gas Reactions

It is interesting to follow through the reactions that take place in the gas producer as the mass of the producer, passes through the ash zone and is


PRODUCER GAS
Producer Gas is Essentially a Mixture of Hydrogen and Carbon Monoxide
Coal
Gas Space
Decrease in Heating Value
Gas To Furnace
Distillation Zone
Volatile Matter of Fuel
Added to Gas
1.0'
Secondary Reduction Zone
C + CO2 = 2 CO
CO + H2O = CO2 + H2
1.5'
Primary Reduction Zone
C + H2O = CO + H2
C + 2H2O = CO2 + 2H2
C + O2 = 2CO
1.0'
Oxidation Zone
C + O2 = CO2
3"-5"
Ash Zone
Heat Flow
Zone of Preheat of Fuel
Heat Absorbed
Heat Flow
Heat Evolved
Producer gas is formed through a variety of reactions that take place in various zones, as shown in the sketch at the left.
Each zone performs a certain function adding its gaseous products to the net result, which is producer gas
The reaction zones in the fuel bed of a gas producer

coal descends from top to bottom. The bottomest zone in the gas producer is of course the ash zone, which has no interest for us. Right above this zone is found the oxidization zone wherein carbon is burnt with oxygen to give carbon dioxide. It should be there preliminarily heated. There is, however, no change of consumption in that zone. In the oxidation zone however, the fuel is burnt completely to carbon

dioxide by the air that is blown through it. Just above this zone is what is known as the primary reduction zone. There the carbon dioxide comes in contact with carbon in the incandescent state and is reduced to carbon monoxide. Furthermore, steam also comes in contact with the incandescent carbon and is converted partly into carbon monoxide and hydrogen and partly into carbon dioxide and hydrogen. These three reactions are heat absorbing reactions in comtradistinction to the reaction that takes place in the oxidation zone, which generates heat.

Secondary Reaction Zone

Immediately above, in the primary action zone there is a secondary reaction zone. In this zone, the carbon dioxide escaping from the primary reaction zone is reduced to carbon monoxide on coming in contact with the incandescent carbon. Futhermore, the carbon monoxide reacts in this zone with steam to give carbon dioxide and hydrogen. Both these reactions absorb heat. This zone is also one in which the fuel is preheated as it descends in the producer.

Above the secondary reduction zone, whose main purpose is to act as a heat interchanger, there is a distillation zone. The coal in this zone is distilled by the gas that passes through it and the volatile ingredients of the fuel are added to the producer gas. The topmost zone is a gas space where the gases change in composition. Their heat value decreases, for, in this space, the carbon monoxide being no longer in contact with hot carbon, reverts to carbon dioxide and carbon. This, of course, has the effect of reducing the thermal value of producer gas.

(Continued from page 710)

the previous good work is useless and a waste of money.

Forms of Organization

In general, there are two forms of organization which may be used to promote industrial gas sales:

1. The district or territory plan. Under this plan each man is responsible for the securing of all loads in a given territory. This system requires that eacn man be able to sell all classes of equipment equally well.

2. The specialist system. Under this plan each man is made responsible for one class of load. The writer very much prefers the latter system for several reasons. First: It gives each man a chance to become really expert on one line of equipment and class of load. Second: It is very flexible. If one man has more than he can handle another man can be used as his assistant and so on as many as necessary. Or if there is not enough of any one class of load to keep a man busy he can take care of two or more classes. Third: This system enables a better comparison of results in similar industries with a consequent improvement in selling methods.

If the specialist system is adopted, the number of men necessary in the department can be determined according to the amount of each load available and the ease or difficulty of securing it. It might take one man a year to get a ten million foot load of one class and only a month to get a fifty million foot load of another.

Equipment Policy

A clean-cut policy on variety of each kind of equipment to be sold should be determined. Likewise, a consistent resale price policy on equipment should be determined. In selecting equipment for resale the following factors should be carefully considered: Quality, operating costs, maintenance costs, local conditions of use, competition, price, ability of manufacturers to deliver and make good, number to be sold, and any other pertinent factors. Once decided upon, the same make or type should be sold unless gas sales can be increased by changing.

Progress Record

From the first sale an accurate record of progress should be kept so each month the department head can determine definitely what loads have been added, increased or reduced during the month. By this means it is possible to determine the value of his department regardless of whether the total company sales are decreasing or increasing. After the first year or so of operation, the value of the department should be clearly apparent from these reports.

Conclusion

To summarize—it is the writer's belief that the organization of an Industrial Gas Sales Department is primarily a sales problem and should be attacked as such rather than as an engineering problem, and that the measure of success in solving this problem is always: How much new revenue has the department secured for the company?

It seems to the writer that probably the reason some Industrial Gas Sales Departments have not shown better results has been because the sales work is subordinated to engineering work which, while valuable in its place, should only be considered as such and not the function of a sales department.

A Gas Appliance Is a Real Christmas Gift

GAS MERCHANDISING

Domestic – Industrial

Ideas for the Man Who Sells

William H. Matlack

DON'T TAKE JUST WHAT IS OFFERED

WHEN you find a prospect for any gas appliance, don't take just what is offered. If you do, you are simply an order taker. To illustrate, a certain Western gas company conducted a sale of room heaters this fall, using a 95-cent-down payment as an inducement; at the same time they were selling a beautiful line of white and white and black porcelain gas ranges at a cut price. One evening about closing time a gentleman came into the office and when one of the salesmen stepped up to wait on him he said, "I want to get one of those room heaters you have advertised," and with this reached into his pocket and pulled out a one dollar bill. The salesman showed him several heaters and a choice was made and the man extended the dollar in payment. But without seeming to see the proffered dollar, the salesman stepped over to one of the special ranges and said "Here is something I want to show you while you are here." At first the customer did not seem very much interested but finally did admit that it was a dandy range and also said that he would need one before long, whereupon the salesman said "Well, if you buy now you will make a substantial saving and if you buy it on our divided payment plan you will soon have it paid for and never miss the money." The man saw the point, put the dollar bill back into his pocket and reached for a ten in his roll and said send them both out tomorrow. That is salesmanship. If you don't try, how do you know who will buy?

¤ ¤ ¤ ¤

LET YOUR WINDOW WORK FOR YOU

YOUR show window will work for you willingly day in and day out and pull people into your store day after day if you will just put it on the productive list by keeping it decorated.

If you will make your trims to tie into holidays alone you can keep a fresh suggestion before prospective customers most all the time. Look at this list of holidays and pick out at least one for each month in the year and start now to plan a trim to tie into twelve of them:

Jan. 1—New Year's Day.
Jan. 8—Anniversary Battle of New Orleans, Louisiana.
Jan. 19—Lee's Birthday.
Feb. 12—Lincoln's Birthday.
Feb. 14—St. Valentine's Day.
Feb. 22—Washington's Birthday.
Mar. 2—Anniversary Texan Republic.
Mar. 17—St. Patrick's Day.
Apr. 18—Good Friday, then Easter Sunday.
Apr. 19—Patriot's Day.
Apr. 26—Confederate Memorial Day, Alabama, Florida, Georgia and Louisiana.
May 2—Confederate Day, Tennessee.
May 10—Confederate Memorial Day, North Carolina and South Carolina.
May 11—Mother's Day.
May 20—Anniversary Mecklenburg Declaration of Independence, North Carolina.
May 30—Decoration Day.
June 3—Jefferson Davis' Birthday, Alabama, Florida, Georgia and Louisiana.
And don't forget the June Bride.
July 4—Independence Day.
July 24—Pioneer's Day, Utah.
August—Vacation time.
Aug. 16—Bennington Battle Day, Vermont.
September—Labor Day; back to school.
Sept. 9—Admission Day, California.
Sept. 12—Defender's Day, Maryland.
Oct. 9—Fire Prevention Day.
Oct. 12—Columbus Day.
Fall windows, foot ball, etc.
Nov. 11—Armistice Day.
November—Thanksgiving.
December—Winter scenes, gift windows, Christmas.

This list is in no way complete, but it will bring to memory other days that may be tied into with your window trims.

File it where you can lay hands upon it when you are short of seasonable ideas for a window display.

¤ ¤ ¤ ¤

WINTER AND ITS EFFECT ON WATER HEATING

WE are reproducing for the readers of this department a circular sent out by the Georgia Railway and Power Company to its customers last winter. The talk to the customer fully explains what he may expect when heating in the fall and winter months. A graph also explains to the customer the effect of weather on water and gas bills. It is a fine lesson in cause and effect which may be enlarged upon or at least utilized to good advantage by salesmen and service men.

The Weather, Water and Gas Bills

Said a Customer:

"I don't, for the life of me, see how it takes more gas to heat a gallon of water in a perfectly warm house in the winter time than it does in the summer time."

STILL it does. And that's one of the main reasons gas bills are higher in winter than in the summer.

The rapidity with which water may be heated depends, naturally, on how warm the water is when you start the heating process. Did you ever try to heat ice water?

The chart on the reverse side of this tells the story better than words. It shows the average temperature of the water that comes from the pipes of your house, every month in the year.

In July the average temperature of water is around 80 degrees. In March it is under 50 degrees and in January is down to 45 degrees—COLDER than the ice water you drink in summer time.

Because of this difference in temperature it takes almost twice as much gas to heat water in winter as in summer. More gas means higher bills. It can't be helped.

Every housewife knows how much water is used in cooking. We thought you'd like to know about this matter of temperature.

GEORGIA RAILWAY & POWER CO.
P. S. Arkwright, President.

¤ ¤ ¤ ¤

A COMPENSATION PLAN

HERE is a plan of compensation with "Rules Governing Salesmen" that has come to our attention and which is self-explanatory. It is a good thing to get everything down in black and white as this sales manager has. The tabulation also contained the selling price and salesman's commission on all appliances sold by the company, but space does not permit publishing it. The commission on appliances is equal to about 7½ per cent.

Rules Governing Salesmen

1. Report at office at 8 a. m.
2. Turn in all orders at 5 p. m.
3. Leave route at office each morning, naming streets that you are going to work.
4. Turn in prospect cards each evening, giving complete information and especially time the prospect will develop. These cards will be routed and filed for your exclusive information and will be returned to you for action on the date indicated.
5. Carefully consult map each morning before starting on route so as to acquaint yourself with the location of gas mains on the streets you intend to work.
6. A drawing account of $20 per week is allowed each salesman. As our books will be closed on the 25th of each month, all commissions will be paid on the first of the month for the sales effected between the first and the 25th.
7. Prices quoted on water heaters include connection charges when all water lines are in and the gas lines are in the kitchen.
8. Prices quoted on all ranges include connection charges when not more than five feet of pipe is required to effect the installation.
9. Work Schedule: In accepting orders for work the following time limit will prevail: Running services, 4 days; move orders, 2 days; setting stoves where all lines are in, 2 days; running services and setting stoves, 3 days; setting meters, 1 day.
10. Deposits Deposit on each meter in residence, $5; in pressing club, $15; restaurants, $25 and up; lunch rooms, $25; bakeries, $100. (Meter deposits are intended to cover one month's average gas consumption.)
11. When a salesman takes an order he is expected to use great care to see that he has the name and initials correct, the address right and the price entered plainly on the order.
12. In accepting meter deposits the salesman must call up the office in order to get the correct number required for the meter deposit.

¤ ¤ ¤ ¤

THE GUIDE 1926-27

Dehydration By Treatment With Hygroscopic

"The Guide, 1926-27" is the fifth edition of this valuable reference data book published annually for engineers, architects and contractors.

This is the biggest "Guide" ever published—several new chapters appear and the other sections have been amplified with much new material. For the first time, air conditioning, drying, mechanical draft, ozone and building insulation have been treated thoroughly and in addition new data have been given on greenhouse heating, water supply systems, boilers, oil burning and gas heating. The result of further laboratory research has produced new tables on heat, humidity and air motion as well as a new comfort chart.

A new index to the technical data section is an added feature that will make the book more useful.

The Guide Publication Committee has produced a book for the every-day use of the engineer and hopes that it will perform a worth-while service during the coming year. The every-other-year publication plan was considered but the protest of technical users as well as firms using catalog data was emphatic for the annual publication, so that the 1926-27 volume is the result.

In general appearance it is the same, being bound in blue cloth and stamped in red and gold. The size, 6 x 9 in., has been found to be most satisfactory, but the greatly increased number of pages makes it a bigger book.

All of the work was carried out under the direction of Perry West, consulting engineer, Newark, N. J., and his committee, consisting of Prof. A. B. Acheson, Syracuse University, Syracuse, N. Y.; J. B. Bolling, consulting engineer, East Orange, N. J.; L. A. Harding, consulting engineer, Buffalo, N. Y.; C. V. Haynes, New York; Dr. E. V. Hill, Chicago, Ill.; S. R. Lewis, consulting engineer, Chicago, Ill.; Dr. W. J. McConnell, Philadelphia; C. L. Riley, New York City; Prof. A. C. Willard, head of Department of Mechanical Engraving, University of Illinois, Urbana, Ill.; Prof. C. P. Yaglou, Harvard School of Public Health, Boston 17, Mass.

Gas in Fire-Place the Ladies' Delight

A gas-fired heater appeals and comforts

J. B. Dillon

IT was a new home and contained a large living room. The house was heated by a coal furnace, on the hot air principle and the furnace was performing nicely. The entire house comfortably warm; but of course the lady of the house must start a coal fire in the handsome fireplace, the novelty of the old grate. "Bluster, bloowy" went the wind outside and the room was choking full of smoke.

"Horrors!, why that is unreasonable. To think of a new chimney to 'smoke' like that!"

"Well, that is just what happened over at Minnie's the day before yesterday," said one of the callers.

"Yes and so it is at my house every time I start a fire in the grate," said another.

"Well it will be the last fire I start in there until something is done," said the hostess.

Hubby had by this time subdued the fire, opened the door and windows to clear the house of the smoke, when a belated female guest arrived.

A New Comer and Her Tale

"Well I declare. Holding open house. Say, this isn't New Years," and she laughed.

"Hello Clara," said the hostess, and then added: "You wouldn't be laughing if your chimney smoked like ours. We had to put out the fire in the grate."

"You've got nothing on me. I had to discard the coal grate and get a gas heater for the fire place. It gives more heat than the coal fire, is cleaner, no smoke, no ashes and you can get the heat in a moment or put it out in a jiffy. Say it's classy!"

"My, but they cost like blazes!"

"Oh no they don't. The first cost is hardly any higher than a full set of fireplace fixtures, and as you use it only occasionally, as with no lugging of kindling, coal and ashes, the maintenance will compare with the cost of using a coal grate fire."

Diverting a Purchase

"That gives me an idea," said another guest. "We were just about to pay $65 for a fireplace set. That will really pay for the gas heater and come to think about it, it is impossible to get any holes burnt in your carpet if it's a gas fire, and believe me that removes an element of fear and the necessity of constant watching. Why if a large piece of wood or coal popped out it might burn the house down."

And right here we get the facts and figures, and the element of superiority; plenty of fuel for our advertisements and sales talks and if we do not profit by the ladies, who run the house, we are passing up the best sales idea possible to conceive.

To determine if the ladies' figures are real, just try and buy a nice basket; shield, andirons, coal bucket, tongs, poker and pincers and see what the cost is and then price the various makes of fireplace gas heaters which are supported on handsome andirons, and require none of the other articles mentioned, and compare their beauty. Now consider that in the warm days all of the outside utensils must be placed somewhere out of the way, whereas with the gas appliance there is no change from one end of the year to the other, and because of these things we are correct when we say that gas in the fireplace is a delight to the ladies.

THE GAS ENGINEER'S POCKET-BOOK

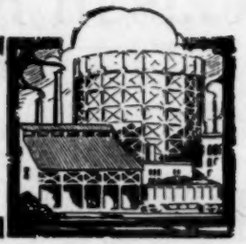
This is a book that is very well known among gas men, not only abroad in England, but also in this country. The present issue, which is published by D. Van Nostrand Company of New York City, is the fourth edition of the book. It must be said that it is hard to find a collection of data and information on so many varied phases of manufacture, distribution and use of gas as is contained in this publication. There are in all 400 pages in this hand-book, and every one of these is just crammed full of information, which is of course of value to all gas men. Of course, there are certain tables which apply particularly to British products and which cannot be used by the American gas engineer, but these are few in number.

The book is divided into four main sections. The first of these deals with information of a general mathematical and construction character, and there are numerous tables and curves on properties of circles and numbers, as well as various notes on the use of different construction material, such as concrete, steel, etc. This section also contains information on the construction of various portions of the gas works such as the retort house, condensers, scrubbers and washers, purifiers and gas holders, station meters, etc. The second edition deals with gas manufacture, and contains considerable information both in descriptive and tabular form, concerning the storing of material, carbonization of coal, boilers and exhausters, washing and scrubbing, purification and storing of gas. A third section is concerned with distribution and selling gas, and the information contained therein is just as interesting and important. There are many tables on distributing gas, both high pressure and low pressure, testing mains, meters, service pipes, etc. The last section is concerned with information on testing of gas and also on water gas practice.

There is a very good index in this book as well as an alphabetical list of tables.

All in all, it is a very useful publication and one that the gas man will find of great interest to have on his desk.

NEWS OF THE GAS INDUSTRY



Gas Sales Division of New England Gas Association Hold Meeting

Listen to Talk by Messrs. Sellman and Weeks

About 175 members and guests attended the December meeting of the Gas Sales Division of the New England Gas Association, which was held at the Boston City Club on Friday, December 10, 1926.

Endeavoring to have some special feature at each meeting, Governor M. B. Webber introduced the Gas Sales Instrumental Trio, composed of Charles Goddard of the Welsbach Company, violin; C. R. Kimball of Walker-Pratt Company, piano, and George DeLoid of the Taunton Gas Light Company, 'cello. It certainly was a great surprise to hear the wonderful music these men rendered. After two pieces the members insisted that the trio give one more number, which they did. It is quite evident that considerable musical talent exists in the association, and the members are undoubtedly to hear some very interesting musical treats at future meetings.

In accordance with the vote passed at the last meeting, Governor Webber appointed the following members to serve on the publicity committee for the ensuing year: Messrs. Woodhead, Haas and Bullard. The association felt that the meetings should receive more publicity in the Boston newspapers and it will be the aim of this committee to secure newspaper publicity for each meeting.

A unanimous vote was passed whereby the secretary was instructed to send a letter to Fred K. Wells, expressing the association's best wishes for the coming year. Mr. Wells, who has always been active in the work of the association, has taken up his residence in Washington, D. C., where he will be associated with the Hoffman Heater Company. For a number of years Mr. Wells acted as treasurer of the Gas Sales Association of New England.

Governor Webber announced that the speaker for the January meeting would be A. A. Norlin, chairman of the American Gas Association Incineration Committee. Mr. Norlin will bring an interesting message and it is expected that the banner crowd of the season will be on hand when the meeting is called to order.

F. E. Sellman Addresses Meeting

F. E. Sellman, engineer of the Servel Corporation, told about the developments which were taking place in the gas refrigerator.

He outlined just how the refrigerator operates with gas and emphasized the point that there are no moving parts to wear out, and thereby eliminating replacements. The speaker stated that although the gas consumption for each machine was only 1½ to 3 cu. ft. per hour, which seems rather small, it means 18,000 cubic feet per year, and this added to the average consumption of gas per meter would mean 56,000 cubic feet of gas per meter.

Mr. Sellman urged the members to actively push the sales of gas refrigerators in order to build up the gas output.

Governor Webber referred to a recent address by Roger W. Babson, who predicted that the year 1927 would see lower stock market prices, lower commodity prices and a general easing off in industry throughout the nation.

With this statement in mind, Governor Webber said that we should start the year 1927 with a definite organized selling plan.

To give the members an outsiders' viewpoint on the methods employed by successful merchandising concerns, Eugene M. Weeks was secured to present his experiences. The speaker has been in the advertising business for a great many years and from his contact with large and successful campaigns for the selling of merchandise he was able to give the members some valuable words of advice in establishing definite sales plans.

* * *

Hornell Gas Light Co. to Buy Canisteo Gas Co. Stock

Albany, N. Y.—The Hornell, (N. Y.) Gas Light Company has made application to the Public Service Commission for authority to purchase all of the capital stock of the Canisteo, (N. Y.) Gas Company for $50,000 or such amount as the commission may determine, and merge the latter into the Hornell Company.

It is alleged by the Hornell Company that it and the Canisteo Company are distributors of natural gas, both companies purchasing the natural gas from the Empire Gas & Fuel Company, Ltd., a producing and distributing company, on a percentage basis. The Hornell Company states that it distributes gas in Hornell and then transmits it to Canisteo where it is distributed to consumers by the Canisteo Company. The two companies, the petition states, are under the same management and the stock in each is held by the same persons. The present management requires separate operation, accounting and management and the petitioner states that there is no reason why this duplication should be continued.

The Hornell Company says it has recently constructed a large building for the manufacture of artificial gas to augment its present supply of natural gas. The merging of the two companies into one, it believes, will be in the public interest.

* * *

National Gas Co. Incorporated

Toledo, O.—The incorporation of the National Gas Company, with a capital of $10,000, has been announced. Incorporators are: Mr. Streicher, W. J. Flory, A. J. Bohnengel, Harry Tuller, Rose Weisenberger.

Refrigeration Interests Industrial Men

Industrial Gas Division, New England Gas Association, Holds December Meeting

The December meeting of the Industrial Gas Division of the New England Gas Association which dealt with the subject of household refrigeration, had a record attendance of 183. At this meeting the following eleven members were voted into the division:

M. B. Webber, assistant treasurer and industrial engineer, Marlboro-Hudson Gas Company, 150 Congress Street, Boston, Mas..

D. S. Reynolds, construction engineer, Boston Consolidated Gas Company, 149 Tremont Street, Boston, Mass.

Carl A. Schlegal, sales engineer, the W. S. I. Contracting Company, Philadelphia, Pa.

George D. Kingsland, New England branch manager, Minneapolis Heat Regulator Company, 462 Boylston Street, Boston, Mass.

Philip A. Mellis, Jr., industrial service engineer, Malden & Melrose Gas Light Company, Malden, Mass.

Prentice H. Hatch, assistant general manager, Connecticut Power Company, New London, Conn.

Harold S. Leanerd, general manager, the Middletown Gas Light Company, Middletown, Conn.

F. W. Robinson, district manager, Armstrong Cork and Insulating Company, 275 Congress Street, Boston, Mass.

D. P. Allen, gas engineer, Connecticut Light and Power Company, Meriden, Conn.

Robert M. Keeney, industrial heating engineer, Connecticut Light and Power Company, 111 West Main Street, Waterbury, Conn.

F. E. Sellman Addresses Meeting

The speaker at this meeting was F. E. Sellman, engineer, Production Department, Servel Corporation, New York City, who talked on the subject of household refrigeration, giving special attention to the continuous operating machine produced by his company. The talk was illustrated with lantern slides showing various types of refrigerating machines of the absorption type.

During the course of the discussion which followed the talk the following points were brought out: The Servel machine has a working internal pressure of from 235 to 266 pounds per square inch. In making the installation, if the local regulations permit, quarter-inch copper tubing may be used for the water line and for the gas line. Though the first boxes shipped to gas companies will be equipped with manual control, the production box will have a thermostatic control which will hold the box temperature between 38 and 40 degrees. The control of the cooling water to secure the temperature control is not good practice, and the thermostat will control the gas flame. Nothing but copper tubing is used for the cooling water and tests conducted in Stockholm, Sweden, over a period of four years indicate that it would require 183 years for the loss of enough hydrogen from the system to have any effect upon the operation of the machine.

Joints Gas Welded

All joints of the machine are gas welded. Gas welding is used because electric welding is too porous for hydrogen. Each unit is tested for a pressure of 3,000 pounds per square inch. The machines that are to be made in this country will have one charge for the United States and another for those to be sold in Central America.

The products of combustion from the flue have a temperature of about 185 degrees and condensation troubles are overcome by having a porcelain cone at the top of the flue. This cone serves the double purpose of a condensation surface that will not corrode and a means of preventing the flue being covered by a box, towel or anything else that would stop the circulation in the flue. One size box only will be built at the start and the comparative cost of operation in New York City is $2.77 for the gas refrigerating machine and $4.00 for electrically operated compressor machines. To de-frost all that is necessary is to shut off the gas.

Brooklyn Union Company to Play Santa Claus to Employees' Children

Brooklyn, N. Y.—Santa Claus will be an early arrival for the children of employees of the Brooklyn Union Gas Company. Next Saturday the Brooklyn Union Gas Club, acting as agents for the company will give a Christmas party and festival.

Upon entering the building the festive greenery will sound a Christmas note which will in turn be added to by the playing of Christmas carols on the organ. The program of the entertainment will be complete and include the French musical clown, acrobatic comedians, a magician and several gymnastic acts.

Santa Claus will act as a song leader. The children's singing will be accompanied by an orchestra of eight musicians, all dressed in clown costume. Other clowns will greet the children as they enter the building and will present each with a box of candy. An intermission during the show will give an opportunity for the committee to supply each child with ice cream and a box of fancy crackers.

All arrangements are in charge of Harold F. Coleman, social vice-president of the club.

* * *

Illinois Power & Light Corp. Declares Dividend

Chicago, Ill.—The board of directors of the Illinois Power and Light Corporation has declared the regular quarterly dividend for the quarter ending December 31, 1926, amounting to 1¾ per cent on the 7 per cent cumulative preferred stock to stockholders of record at the close of business December 10, 1926. The board also declared a dividend of 1½ per cent upon the 6 per cent cumulative prefererd stock and 1½ per cent on the 6 per cent participating preferred stock to stockholders of record on the same date. All three dividends are payable January 1, 1927.

Agreed At Last on Franchise

Denver, Colo.—The City of Denver and the Public Service Company of Colorado have agreed on the company's proposed twenty-year franchise, and a special election to ask the tax payers to ratify it has been called for February 8.

The city wanted the company to sign: "Such rates are subject to regulation as provided in the charter of the city and county of Denver," but it was finally agreed and signed: "Such rates shall be subject to regulation as provided by law."

The company accepted the Palmer rates. Ray Palmer, New York engineer, employed by the city, but refused to accept his valuation figures.

The rates and stipulations follow: Gas, 90 cents per M. cu. ft., and it is estimated this means a saving to the consumers of from $55,000 to $75,000 a year.

Fifty thousand dollars a year penalty for failure of company to bring in natural gas within two years after the council and mayor have determined a supply is available, this clause to be operative during the first ten years of the franchise. This penalty provision applies in the second ten years provided the city is willing to grant the company a natural gas franchise for twenty years.

Gas quality fixed at 400 B.t.u. (standard conditions 333 in Denver). This standard must be maintained daily. If it falls below the consumer must be rebated.

Standards of service may be raised at any at anv time by agreement between manager of improvements and the company.

Company to pay $60,000 a year franchise tax.

Violation of franchise provisions by the company cancels the franchise.

* * *

Society of Gas Lighting Holds Annual Meeting

New York City.—The fifty-first annual meeting of the Society of Gas Lighting was held at the Hotel Astor, Thursday, December 9th. The following officers were elected:

President: Dr. Alex. C. Humphreys.

Vice-president, W. Cullen Morris.

Treasurer, William J. Welsh.

Secretary, George G. Ramsdell.

Member of executive committee, Alfred E. Forstall.

Finance committee, Clifford E. Paige, Colin C. Simpson, John S. DeHart, Jr.

The Hon. George B. Cortelyou was elected an honorary member of the society.

* * *

Pierre Plantinga on European Trip

Cleveland, O.—Pierre Plantinga, president of the Gas Machinery Company of Cleveland, O., sailed for Europe December 1, on the S.S. Mauretania, and expects to be absent for about two months.

It is his intention to visit his old home in the Netherlands, and also several points of interest in England, with side trips to important centers in Belgium, Germany and France.

The main purpose of his trip is to keep abreast with the developments in the gas business as practiced abroad.

Pen Argyl Gas Co. Sold to Pa. Utilities Company

Easton, Pa.— The Pennsylvania Utility Company, Easton, Pa., has purchased the Pen Argyl Gas Company from the Walter Ede estate, Pen Argyl, the change to take effect on January 1. Edmund Kellow, present manager, will be retained in the position it is reported.

The Pennsylvania concern, it is stated, is making efforts to secure numerous plants in this section. Recently an offer was made for the Bangor Gas Company, but they were outbid by a concern from Chicago.

* * *

New Holder for Gas Co. in Wilkesbarre

Wilkesbarre, Pa.—A permit has been given Pennsylvania Power & Light Co. to erect a storage holder costing $40,000. The holder will be almost 100 feet high, 125 feet in diameter and will hold 1,000,000 feet of illuminating gas.

Cumberland Gas Company Ownership Changes

Taken Over By Central Public Service Corporation

Cumberland, Ind.—Announcement is made of the sale of the Cumberland and Allegheny Gas Company to the Central Public Service Company, with offices in Chicago. This is a corporation formed recently under the Delaware charter, which has purchased public utilities in fifteen states and Canada.

In a formal announcement, the acquisition of the stock and franchise of the local company with numerous other gas plants in different states is detailed. The new corporation has purchased the heating and lighting utilities in Chambersburg, Hanover, Waynesboro and other Pennsylvania cities.

The Cumberland and Allegheny Gas Company supplies a population of 125,000 in Maryland and adjacent territory. It was formed largely by Philadelphia interests and was a subsidiary of the Southern Gas Corporation. The company distributes natural gas piped from the Central West Virginia field.

Gas Company Rewards Loyal, Faithful Service

Bridgeton, N. J.—Bridgeton's large and extensive sewer work during the past summer has meant a lot of extra and careful work on the part of employees of the Bridgeton Gas Light Company and as a result of the successful manner in which the gas company employees conducted their affairs a chicken dinner was tendered to them. The dinner marked the appreciation of the company for the faithful and loyal service. The following were present:

President Minch, Superintendent J. B. Jones, Assistant Superintendent Seorim DuBois, Robert F. Crowell, new business agent; Commissioner of Streets and Highways Alfred H. Lupton, A. H. Lupton, Jr., contractor in charge of the extensive sewer extensions; Linwood R. Mulford, foreman; Burton A. Mulford, foreman in charge of excavation; Leonard G. Watson, the gas company's superintendent of distribution; Frank Leake, William Peterson, John Peguesse, William Couch, of the gas company's service department, and William B. Kirby.

Southern Gas & Power Co. Takes Over Salem Gas Plant

Salem, N. J.—The Salem Gas Light Company officially went out of existence when the physical assets of the company were turned over to the Southern Gas and Power Company, which will be the operating company in the future.

The Southern Gas and Power Company, which has offices in Philadelphia, owns and operates 22 gas companies in the south and east. This, however, is their first venture to New Jersey. They operate five companies in Pennsylvania, three in New York state and several in Maryland and Virginia.

A representative of the company is in Salem at this time, attending to the details of transferring the property, but it has been unofficially announced that the present personnel of the old Salem Gas Light Company will be retained.

Commercial Gas Managers Meet in Lynn

Lynn, Mass.—The November meeting of the New England Association of Commercial Gas Managers was held on November 26, 1926, at Hotel Westminster.

Mr. Wm. Gould, a fellow member, gave a talk on "The Personality of a Salesman."

"A pleasing personality is one of the most valuable assets in any line," said Mr. Gould in his talk which was direct, vigorous and inspiring. He stressed the value of persistence in a salesman giving data to emphasize his statements.

The meeting was voted a particularly interesting and instructive occasion.

* * *

Missouri Power & Light Co. Declared Dividend

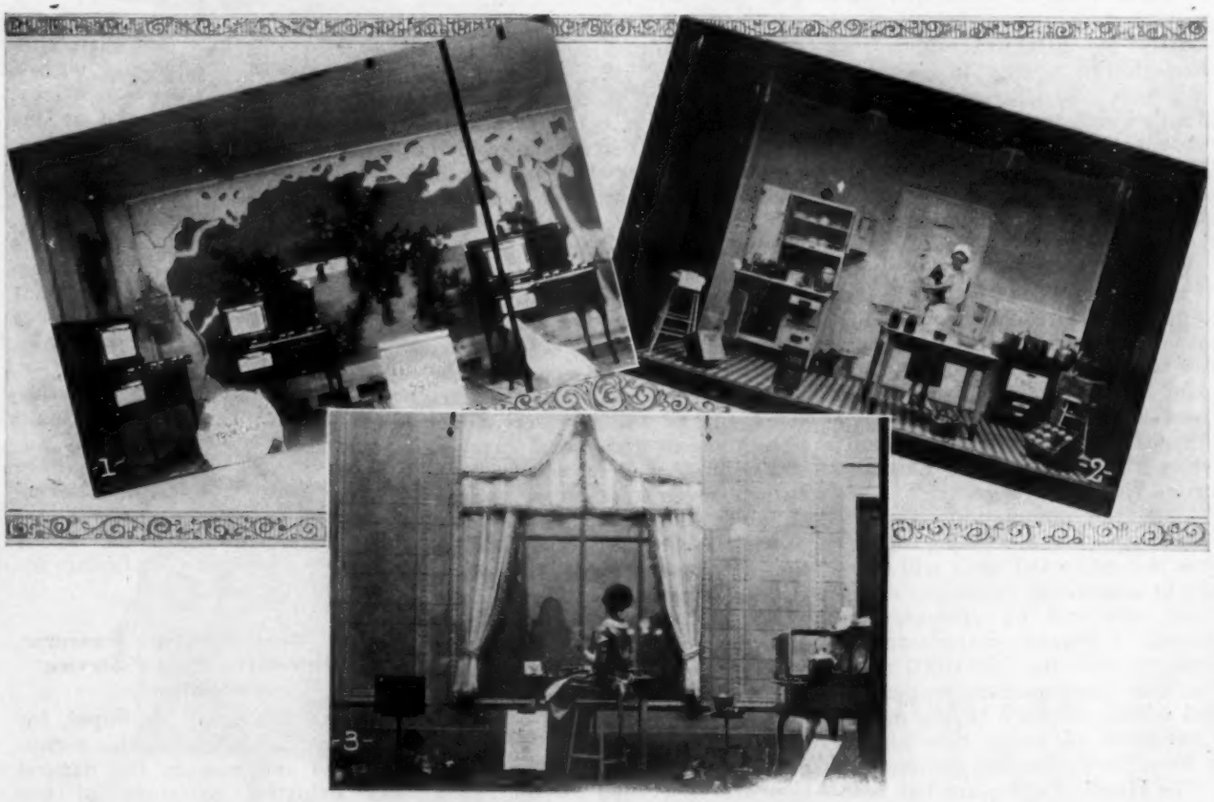
Chicago, Ill.—The board of directors of Missouri Power and Light Company declared the regular quarterly dividend of 1¾ per cent on the cumulative preferred stock of the company to preferred stockholders of record at the close of business December 20, 1926. The dividend is payable on January 1, 1927.

* * *

R. J. Hole Resigns Presidency of Whetstone Utilities Management Corporation

Philadelphia, Pa.—R. J. Hole, of Greensboro, N. C., who has been prominently identified with the development of the gas industry in the South for many years, has resigned as president of the Whetstone Utilities Management Corporation, effective January 1st. As head of this organization, which managed all the properties of the Southern Gas and Power Corporation, Mr. Hole was active in directing the operation and expansion of important gas properties in eleven different states, with headquarters in Philadelphia.

Mr. Hole plans to spend the winter with his family in St.



A Series of Interesting Window Displays

Petersburg, Fla., at the same time keeping in touch with his extensive business interests in Florida and North Carolina. For a number of years he was one of the owners of the North Carolina Public Service Company, supplying gas, electric and transportation service in the territory centering in and around Greensboro.

Mr. Hole will continue his interest in public utilities through his presidency of the Carolina States Electric Company of Charlotte, N. C.

* * *

G. S. Hawley Addresses Mfrs. Assn.

Bridgeport, Conn. — Re-elected president of the Bridgeport Manufacturers Assn. for the third term at the annual meeting and dinner in the University club, George S. Hawley, president of the Bridgeport Gas Light Company, declared his belief that manufacturers and business men can "effectively control the business cycle so that untold blessings to the country will result, and industrial peace and continuous employment be more than a dream."

Always faced with the fear of hard times in the past, claimed to be the result of economic and business cycles, business men have now some "control of what were considered uncontrollable economic forces," he said. According to the old cycle there should be depression now, he said, whereas there continues to be a "goodly measure of prosperity" while he does not believe that hard times can be eliminated entirely the power is the people's as a whole to prolong prosperity materially, he asserted.

New Gas Plant to Supply Bronx and Manhattan

New York City.—New York's daily gas supply will be increased shortly by 20,000,000 cubic feet through the placing in operation of a new manufacturing plant in Hunt's Point, the Bronx. Up to the present time more than $15,000,000 has been expended by the Consolidated Gas Company on this addition to its manufacturing facilities.

With this addition a daily supply of more than 200,000,000 cubic feet of gas will be available to consumers in the boroughs of Manhattan and the Bronx. The Hunt's Point plant even at the present time covers several of the 180 acres at the end of Hunt's Point avenue, where the waters of the East and Bronx rivers converge.

With the completion of additional gas manufacturing apparatus the entire 180 acres will literally be covered by additional structures that will be necessary to provide a greater manufacturing capacity than the 20,000,000 cubic feet unit now nearing completion, and which will soon supply nearly 1,500 miles of mains now hidden in New York's avenues and streets.

The Hunt's Point plant has been built by the Consolidated Gas Company to meet the steadily increasing demand for gas for industrial and heating purposes. This new gas plant will furnish about 1,200 tons of coke every twenty-four hours in addition to its immense output of gas.

The process of manufacture at Hunt's Point is entirely different from that hitherto employed in any of the plants of New York, including the enormous gas works of the Astoria Light, Heat and Power Company, a subsidiary of the Consolidated Gas Company, at Astoria, Queens, which has a daily manufacturing capacity of about 84,000,000 cubic feet.

The Consolidated Gas Company has built bulkheads on the East river end of the property which permit ocean going coal carrying steamships, each of a draught of twenty-seven feet to be warped to the bulkheads for the unloading of their cargoes. To accommodate these steamships it was necessary for the company to dredge a channel thirty feet deep at low tide and 150 wide to connect with the East river's main channel. The bulkheads are 3,000 feet in length.

There are two new features at the Hunt's Point plant so far as gas manufacturing and distribution are concerned in New York. The product will be coal gas exclusively. No water gas will be manufactured there. The gas will be made in coke ovens, a radically different process than has ever been used in a New York plant, including the modern plant of the Astoria Light, Heat and Power Company at Astoria.

* * *

Never-Burn Hot Plates

The manufacturer of this device, the Never-Burn Hot Plate Sales Co., 128 No. Wells street, Chicago, Ill., claim that with its aid the danger of burned food is a thing of the past.

Even if all moisture is boiled out, the food, or preserves, jams, etc., cannot burn, nor the vessel containing them become ruined through overheating.

As proof of this assertion the manufacturers also claim that this is the only device on which milk, one of the most sensitive commodities used in cooking, can be boiled without scorching.

The Never-Burn Hot Plate consists of a disc of metal with a raised edge in which are air spaces; also sixteen ribs of metal around which the air circulates.

The plate is placed directly over the flame of the range and the utensil placed on the ribs and rim, the air circulating between the plate and the cooking vessel, precludes the necessity of constant watching and stirring as the contents are at no time in danger of burning.

Literature put out by this company contain many excellent testimonials relating to the many advantages the housewives have secured from the use of Never-Burn Hot Plates.

Communicate with the above mentioned company for further information, if interested.

* * *

R. G. Soper Elected Treasurer, Southwestern Public Service Association

Dallas, Texas.—R. G. Soper, for many years active in the manufactured and now in the natural gas industry, secretary of the Dallas Gas Company, has been elected treasurer of the Southwestern Public Service Association.